

2018 ALTERNATIVE C

PM Peak

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2018 Alt.C INTERSECTION ANALYSIS RESULTS - PM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
1. I-5 SB Ramps @ Stockdale Hwy						
SB - I-5 SB Off ramp - STOP Control	343	353	103%	7.5	A	
EB - Stockdale Hwy	129	128	99%	0.0	A	A
WB - Stockdale Hwy	183	171	93%	0.1	A	
<i>Intersection Total</i>	<i>655</i>	<i>652</i>	<i>100%</i>			
2. I-5 NB Ramps @ Stockdale Hwy						
NB - I-5 NB Off Ramp - STOP Control	52	51	98%	9.9	A	
EB - Stockdale Hwy	460	469	102%	0.0	A	A
WB - Stockdale Hwy	388	343	88%	0.0	A	
<i>Intersection Total</i>	<i>900</i>	<i>863</i>	<i>96%</i>			
4. Enos Ln @ Stockdale Hwy						
NB - Enos Ln	557	520	93%	29.3	C	
SB - Enos Ln	244	242	99%	17.5	B	
EB - Stockdale Hwy	492	505	103%	22.6	C	C
WB - Stockdale Hwy	588	558	95%	17.9	B	
<i>Intersection Total</i>	<i>1,881</i>	<i>1,825</i>	<i>97%</i>	<i>21.9</i>		
5. SR-43 @ I-5 NB Ramps						
NB - SR-43	721	729	101%	0.1	A	
SB - SR-43	451	450	100%	0.0	A	A
WB - I-5 NB Off Ramp - STOP Control	72	73	101%	12.2	B	
<i>Intersection Total</i>	<i>1,244</i>	<i>1,252</i>	<i>101%</i>			
6. SR-43 @ I-5 SB Ramps						
NB - SR-43	600	599	100%	0.0	A	
SB - SR-43	437	433	99%	0.8	A	
EB - I-5 SB Ramp - STOP Control	154	165	107%	15.5	B	
<i>Intersection Total</i>	<i>1,191</i>	<i>1,197</i>	<i>101%</i>			
7. Nord Rd @ Stockdale Hwy						
NB - Nord Rd	66	66	100%	19.9	B	
SB - Nord Rd	67	65	97%	33.5	C	
EB - Stockdale Hwy	886	855	97%	25.5	C	
WB - Stockdale Hwy	656	659	100%	17.9	B	
<i>Intersection Total</i>	<i>1,675</i>	<i>1,645</i>	<i>98%</i>	<i>29.8</i>		
9. Heath Rd @ Stockdale Rd						
NB - Heath Rd	51	49	96%	13.4	B	
SB - Heath Rd	220	203	92%	26.2	C	
EB - Stockdale Hwy	1,026	1,000	97%	26.0	C	C
WB - Stockdale Hwy	980	993	101%	15.8	B	
<i>Intersection Total</i>	<i>2,277</i>	<i>2,245</i>	<i>99%</i>	<i>20.0</i>		

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10. WSP @ Stockdale Off/ On						
NB - Stockdale Hwy	269	266	99%	18.2	B	
EB - Stockdale Hwy	1,239	1,206	97%	9.3	A	
WB - WSP	996	994	100%	7.7	A	
Intersection Total	2,504	2,466	98%	14.2		
14. Allen Rd @ Brimhall Rd						
NB - Allen Rd	1,841	1,762	96%	23.3	C	
SB - Allen Rd	1,399	1,405	100%	32.6	C	
EB - Brimhall Rd	365	361	99%	21.9	C	
WB - Brimhall Rd	425	421	99%	18.7	B	
Intersection Total	4,030	3,949	98%	30.0		
15. Allen Rd @ WSP WB Ramps						
NB - Allen Rd	572	547	96%	42.4	D	
SB - Allen Rd	1,507	1,551	103%	21.8	C	
WB - Off Ramp/On Ramp WSP WB	1,830	1,730	95%	16.1	B	
Intersection Total	3,909	3,828	98%	27.6		
16. Allen Rd @ WSP EB Ramps						
NB - Allen Rd	932	900	97%	11.4	B	
SB - Allen Rd	1,995	1,978	99%	8.2	A	
EB - WSP EB off Ramp	86	73	85%	27.4	C	
Intersection Total	3,013	2,951	98%	9.7		
18. Allen Rd @ Stockdale Hwy						
NB - Allen Rd	290	290	100%	18.1	B	
SB - Allen Rd	969	963	99%	16.3	B	
EB - Stockdale Hwy	738	737	100%	33.1	C	
WB - Stockdale Hwy	970	967	100%	25.0	C	
Intersection Total	2,967	2,957	100%	26.6		
20. Calloway Dr @ Brimhall Rd						
NB - Calloway Dr	1,874	1,797	96%	36.0	D	
SB - Calloway Dr	1,614	1,613	100%	32.2	C	
EB - Brimhall Rd	733	733	100%	23.5	C	
WB - Brimhall Rd	1,079	1,079	100%	23.9	C	
Intersection Total	5,300	5,222	99%	30.6		
21. Calloway Dr @ WSP WB Ramps						
NB - Calloway Dr	1,319	1,319	100%	16.1	B	
SB - Calloway Dr	1,838	1,854	101%	15.9	B	
EB - WSP WB on Ramp	1,240	1,196	96%	18.0	B	
WB - WSP WB Off Ramp	855	798	93%	6.2	A	
Intersection Total	5,252	5,167	98%	15.7		

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<u>22. Calloway Dr @ WSP EB Ramps</u>						
NB - Calloway Dr	1,180	1,191	101%	6.0	A	
SB - Calloway Dr	2,119	2,117	100%	7.9	A	
EB - WSP EB off Ramp	485	439	91%	11.9	B	
<i>Intersection Total</i>	3,784	3,747	99%	7.8		
<u>23. Calloway Dr @ Stockdale Hwy</u>						
NB - Calloway Dr	1,772	1,773	100%	30.0	C	
SB - Calloway Dr	2,464	2,408	98%	25.2	C	
EB - Stockdale Hwy	1,149	1,150	100%	33.1	C	
WB - Stockdale Hwy	1,108	1,109	100%	28.2	C	
<i>Intersection Total</i>	6,493	6,440	99%	28.4		
<u>25. Coffee Rd @ Brimhall Rd</u>						
NB - Coffee Rd	1,515	1,541	102%	15.6	B	
SB - Coffee Rd	1,952	1,952	100%	24.7	C	
EB - Brimhall Rd	800	797	100%	25.7	C	
WB - Brimhall Rd	1,945	1,921	99%	31.0	C	
<i>Intersection Total</i>	6,212	6,211	100%	24.5		
<u>27. Coffee Rd @ WSP EB Ramp</u>						
NB - Coffee Rd	1,424	1,416	99%	12.3	B	
SB - Coffee Rd	2,448	2,431	99%	7.4	A	
EB - WSP EB off Ramp	570	525	92%	10.0	B	
<i>Intersection Total</i>	4,442	4,372	98%	8.8		
<u>28. Coffee Rd @ Truxtun Ave</u>						
NB - Coffee Rd	2,297	2,299	100%	14.4	B	
SB - Coffee Rd	1,752	1,748	100%	9.8	A	
WB - Truxtun Ave	468	469	100%	27.8	C	
<i>Intersection Total</i>	4,517	4,516	100%	14.0		
<u>31. Mohawk St @ WSP WB Ramps</u>						
NB - Mohawk St	856	820	96%	10.2	B	
SB - Mohawk St	1,556	1,440	93%	5.4	A	
WB - WSP WB Off Ramp	649	599	92%	11.5	B	
<i>Intersection Total</i>	3,061	2,859	93%	8.1		
<u>32. Mohawk St @ WSP EB Ramps</u>						
NB - Mohawk St	1,448	1,429	99%	17.8	B	
SB - Mohawk St	1,133	1,088	96%	8.3	A	
EB - WSP EB off Ramp	1,225	1,196	98%	13.3	B	
<i>Intersection Total</i>	3,806	3,713	98%	19.7		

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<u>33. Mohawk St @ Truxtun Ave</u>						
NB - Mohawk St	1,770	1,777	100%	27.0	C	
SB - Mohawk St	1,379	1,371	99%	22.7	C	
EB - Truxtun Ave	560	557	99%	24.6	C	
WB - Truxtun Ave	586	585	100%	32.3	C	C
<i>Intersection Total</i>	4,295	4,290	100%	26.0		
<u>36. Airport Dr & State Rd/SR204 WB Ramp</u>						
NB - Airport Dr	1,769	1,687	95%	21.7	C	
SB - Airport Dr	1,426	1,417	99%	21.9	C	
EB - State Rd	241	239	99%	15.0	B	
WB - SR204 WB Off Ramp	1,142	1,136	99%	24.4	C	
<i>Intersection Total</i>	4,578	4,479	98%	22.1		
<u>37. Buck Owens Blvd & SR99 NB Ramp</u>						
NB - SR99 NB Off Ramp	1,340	1,289	96%	17.5	B	
WB - Buck Owens Blvd	859	808	94%	3.3	A	
<i>Intersection Total</i>	2,199	2,097	95%	12.0		
<u>38. Rio Mirada Dr & Buck Owens Blvd</u>						
NB - Buck Owens Blvd	747	740	99%	30.9	C	
SB - Buck Owens Blvd	65	64	98%	22.9	C	
EB - Rio Mirada Dr	499	528	106%	16.2	B	
WB - Rio Mirada Dr	355	356	100%	22.4	C	
<i>Intersection Total</i>	1,666	1,688	101%	24.2		
<u>39. SR99 NB Ramps/Sillect Ave & Buck Owens Blvd</u>						
NB - Buck Owens Blvd	1,185	1,034	87%	46.5	D	
SB - Buck Owens Blvd	631	614	97%	48.7	D	
EB - SR99 NB Off Ramp	320	318	99%	45.2	D	
WB - Sillect Ave	591	595	101%	40.7	D	
<i>Intersection Total</i>	2,727	2,561	94%	45.5		
<u>40. Rosedale Hwy & Camino del Rio Ct</u>						
NB - Camino del Rio Ct	356	361	101%	40.8	D	
SB - Camino del Rio Ct	509	512	101%	66.6	E	
EB - Rosedale Hwy	2,336	2,220	95%	38.5	D	
WB - Rosedale Hwy	2,763	2,712	98%	28.8	C	
<i>Intersection Total</i>	5,964	5,805	97%	41.9		
<u>41. Rosedale Hwy & SR99 SB Ramp</u>						
SB - SR99 SB Off Ramp	701	723	103%	22.1	C	
EB - Rosedale Hwy	1,976	1,927	98%	8.2	A	
WB - Rosedale Hwy	2,210	2,153	97%	20.7	C	
<i>Intersection Total</i>	4,887	4,803	98%	15.9		

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42. Rosedale Hwy & SR99 NB Ramp/Buck Owens Blvd						
NB - SR99 NB Off Ramp	1,580	1,564	99%	58.1	E	
SB - Buck Owens Blvd	1,022	996	97%	25.3	C	
EB - Rosedale Hwy	2,124	2,070	97%	25.2	C	
WB - 24th St	2,803	2,770	99%	16.2	B	
<i>Intersection Total</i>	7,529	7,400	98%	28.8		
43. 24th St & Oak St						
NB - Oak St	1,744	1,749	100%	34.4	C	
SB - Oak St	103	102	99%	51.4	D	
EB - 24th St	2,633	2,617	99%	33.9	C	
WB - 24th St	2,876	2,849	99%	22.3	C	
<i>Intersection Total</i>	7,356	7,317	99%	29.7		
45. Oak St @ Truxtun Ave						
NB - Oak St	1,184	1,134	96%	45.2	D	
SB - Oak St	1,562	1,558	100%	26.9	C	
EB - Truxtun Ave	1,690	1,633	97%	47.5	D	
WB - Truxtun Ave	1,328	1,332	100%	46.1	D	
<i>Intersection Total</i>	5,764	5,657	98%	43.8		
46. California Ave & Chester Ln						
NB - Chester Ln	207	207	100%	63.4	E	
SB - Chester Ln	563	361	64%	154.5	F	
EB - California Ave	1,470	1,451	99%	47.5	D	
WB - California Ave	1,774	1,873	106%	34.3	C	
<i>Intersection Total</i>	4,014	3,892	97%	51.9		
47. California Ave & SR99 SB Ramps/Real Rd						
NB - Real Rd	600	581	97%	77.5	E	
SB - SR99 SB Off Ramp	1,355	1,364	101%	17.8	B	
EB - California Ave	1,790	1,555	87%	110.6	F	
WB - California Ave	1,345	1,434	107%	54.5	D	
<i>Intersection Total</i>	5,090	4,934	97%	62.3		
48. California Ave & SR99 NB Ramps						
NB - SR99 NB Off Ramp	600	589	98%	22.1	C	
SB - Extended Stay Hotel	107	106	99%	37.4	D	
EB - California Ave	1,298	1,268	98%	16.3	B	
WB - California Ave	2,330	2,268	97%	11.5	B	
<i>Intersection Total</i>	4,335	4,231	98%	25.1		

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49. California Ave & Oak St						
NB - Oak St	1,041	1,039	100%	35.4	D	
SB - Oak St	1,593	1,549	97%	27.7	C	
EB - California Ave	1,560	1,535	98%	49.0	D	
WB - California Ave	1,430	1,423	100%	38.5	D	
<i>Intersection Total</i>	5,624	5,546	99%	39.8		
51. Stockdale Hwy & Real Rd						
NB - Real Rd	699	656	94%	44.4	D	
SB - Real Rd	708	708	100%	31.3	C	
EB - Stockdale Hwy	1,389	1,098	79%	153.0	F	
WB - Stockdale Hwy	1,050	1,073	102%	65.2	E	
<i>Intersection Total</i>	3,846	3,535	92%	81.8		
53. Stockdale Hwy & Oak St/Wible Rd						
NB - Wible Rd	803	804	100%	28.8	C	
SB - Oak St	781	778	100%	20.5	C	
EB - Stockdale Hwy	814	659	81%	35.6	D	
WB - Stockdale Hwy	799	799	100%	35.5	D	
<i>Intersection Total</i>	3,197	3,040	95%	29.9		
54. SR58 Ramps & Real Rd						
NB - Real Rd	591	586	99%	27.6	C	
SB - Real Rd	1,086	964	89%	32.0	C	
WB - SR58 WB	660	610	92%	17.4	B	
<i>Intersection Total</i>	2,337	2,160	92%	26.7		
57. Ming Ave & Real Rd						
NB - Real Rd	457	462	101%	49.5	D	
SB - Real Rd	783	760	97%	79.7	E	
EB - Ming Ave	1,799	1,798	100%	18.3	B	
WB - Ming Ave	2,326	2,264	97%	37.8	D	
<i>Intersection Total</i>	5,365	5,284	98%	33.7		
58. Ming Ave & SR99 SB Ramps						
EB - Ming Ave	2,031	2,060	101%	2.5	A	
WB - Ming Ave	1,648	1,686	102%	1.5	A	
<i>Intersection Total</i>	3,679	3,746	102%	2.0		
59. Ming Ave & Wible Rd						
NB - Wible Rd	810	810	100%	30.1	C	
SB - Wible Rd	843	846	100%	40.1	D	
EB - Ming Ave	2,514	2,440	97%	25.1	C	
WB - Ming Ave	1,762	1,781	101%	20.2	C	
<i>Intersection Total</i>	5,929	5,877	99%	26.5		

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60. Ming Ave & SR99 NB Ramps						
NB - Sears	318	315	99%	33.9	C	
SB - SR99 SB Off Ramp	805	790	98%	22.2	C	
EB - Ming Ave	2,265	2,297	101%	23.3	C	
WB - Ming Ave	1,504	1,534	102%	53.5	D	
<i>Intersection Total</i>	4,892	4,936	101%	30.2		
61. Ming Ave & Castro Ln						
NB - Castro Ln	347	347	100%	37.4	D	
SB - Castro Ln	339	339	100%	21.8	C	
EB - Ming Ave	1,414	1,434	101%	38.8	D	
WB - Ming Ave	1,183	1,178	100%	36.8	D	
<i>Intersection Total</i>	3,283	3,298	100%	34.2		
66. Brundage Ln & H St						
NB - H St	718	697	97%	14.0	B	
SB - H St	883	878	99%	28.2	C	
EB - Brundage Ln	618	618	100%	33.0	C	
WB - Brundage Ln	721	706	98%	29.9	C	
<i>Intersection Total</i>	2,940	2,899	99%	26.2		
67. SR58 WB Ramp & H St						
NB - H St	766	747	98%	15.9	B	
SB - H St	1,110	1,101	99%	38.8	D	
WB - Richland St	577	581	101%	28.4	C	
<i>Intersection Total</i>	2,453	2,429	99%	33.8		
68. SR58 EB Ramp & H St						
NB - H St	779	776	100%	24.9	C	
SB - H St	1,120	1,114	99%	17.7	B	
EB - SR58 EB Off Ramp	720	673	93%	14.2	B	
<i>Intersection Total</i>	2,619	2,563	98%	19.4		
70. Brundage Ln & Chester Ave						
NB - Chester Ave	720	720	100%	25.7	C	
SB - Chester Ave	1,190	1,187	100%	26.2	C	
EB - Brundage Ln	570	539	95%	45.7	D	
WB - Brundage Ln	564	562	100%	29.7	C	
<i>Intersection Total</i>	3,044	3,008	99%	36.2		
71. SR58 WB Ramp & Chester Ave						
NB - Chester Ave	692	684	99%	8.1	A	
SB - Chester Ave	1,160	1,145	99%	18.1	B	
WB - Richland St	660	660	100%	21.3	C	
<i>Intersection Total</i>	2,512	2,489	99%	19.2		

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72. SR58 EB Ramp & Chester Ave						
NB - Chester Ave	852	851	100%	17.6	B	
SB - Chester Ave	1,207	1,193	99%	12.1	A	
EB - Frontage Rd	511	499	98%	18.6	B	
<i>Intersection Total</i>	2,570	2,543	99%	16.5		
74. Brundage Ln & Union Ave						
NB - Union Ave	1,421	1,388	98%	12.7	B	
SB - Union Ave	2,121	2,116	100%	28.0	C	
EB - Brundage Ln	549	544	99%	39.4	D	
WB - Brundage Ln	926	932	101%	28.9	C	
<i>Intersection Total</i>	5,017	4,980	99%	25.1		
75. Brundage Ln & SR58 WB Ramps (Union Ave)						
NB - SR58 WB Off Ramp	620	603	97%	21.4	C	
SB - Liggett St	84	85	101%	25.9	C	
EB - Brundage Ln	712	687	96%	12.3	B	
WB - Brundage Ln	462	461	100%	23.9	C	
<i>Intersection Total</i>	1,878	1,836	98%	20.8		
76. SR58 EB Ramp & Union Ave						
NB - Union Ave	1,291	1,296	100%	6.6	A	
SB - Union Ave	1,180	1,211	103%	5.8	A	
EB - SR58 EB Off Ramp	880	835	95%	19.7	B	
<i>Intersection Total</i>	3,351	3,342	100%	11.6		
77. Cottonwood Rd & Brundage Ln						
NB - Cottonwood Rd	734	698	95%	10.2	B	
SB - Cottonwood Rd	311	312	100%	31.1	C	
EB - Brundage Ln	326	327	100%	29.9	C	
WB - Brundage Ln	586	611	104%	33.2	C	
<i>Intersection Total</i>	1,957	1,948	100%	24.1		
78. Brundage Ln & SR58 WB Ramps (Cottonwood Rd)						
NB - SR58 WB Off Ramp	205	222	108%	52.7	D	
SB - Driveway	29	28	97%	17.2	B	
EB - Brundage Ln	588	562	96%	11.7	B	
WB - Brundage Ln	595	595	100%	26.9	C	
<i>Intersection Total</i>	1,417	1,407	99%	24.7		
79. Cottonwood Rd & SR 58 EB Off Ramp						
NB - Cottonwood Rd	768	768	100%	16.1	B	
SB - Cottonwood Rd	531	554	104%	7.5	A	
EB - SR-58 EB off Ramp	510	487	95%	11.1	B	
<i>Intersection Total</i>	1,809	1,809	100%	12.1		

HCM Signalized Intersection Capacity Analysis

13: Rosedale Hwy & Allen Road

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑↑	↑↑	↑	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	0.97	0.91	0.97	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00	0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00		
Satd. Flow (prot)	3400	4803	1568	3303	3085	1509	3367	4813	3183	4907		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00		
Satd. Flow (perm)	3400	4803	1568	3303	3085	1509	3367	4813	3183	4907		
Volume (vph)	134	668	147	375	450	237	262	1127	169	181	888	31
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	144	718	158	403	484	255	279	1199	180	195	955	33
RTOR Reduction (vph)	0	0	14	0	0	35	0	0	0	0	0	0
Lane Group Flow (vph)	144	718	144	403	484	220	279	1379	0	195	988	0
Heavy Vehicles (%)	3%	8%	3%	6%	17%	7%	4%	5%	10%	10%	5%	10%
Turn Type	Prot		Perm	Prot		Perm	Prot		Prot		Prot	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.8	31.9	31.9	13.7	37.8	37.8	9.2	32.8		7.1	30.7	
Effective Green, g (s)	9.1	34.9	34.9	15.0	40.8	40.8	10.1	35.8		8.0	33.7	
Actuated g/C Ratio	0.08	0.32	0.32	0.14	0.37	0.37	0.09	0.33		0.07	0.31	
Clearance Time (s)	5.3	7.0	7.0	5.3	7.0	7.0	4.9	7.0		4.9	7.0	
Vehicle Extension (s)	2.0	6.0	6.0	2.0	5.3	5.3	2.0	3.1		2.0	2.4	
Lane Grp Cap (vph)	282	1528	499	452	1147	561	310	1571		232	1507	
v/s Ratio Prot	0.04	c0.15		c0.12	0.16		c0.08	c0.29		0.06	0.20	
v/s Ratio Perm			0.10			0.17						
v/c Ratio	0.51	0.47	0.29	0.89	0.42	0.39	0.90	0.88		0.84	0.66	
Uniform Delay, d1	48.2	30.0	28.1	46.6	25.7	25.3	49.3	34.9		50.2	33.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.0	1.5	18.9	1.1	2.1	26.8	5.9		22.2	0.9	
Delay (s)	48.8	31.0	29.5	65.5	26.8	27.4	76.1	40.8		72.4	33.9	
Level of Service	D	C	C	E	C	C	E	D		E	C	
Approach Delay (s)		33.3			40.6			46.7			40.2	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

17: Allen Road & San Juan Ave

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00			1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	0.97			1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.96			0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1740			1770	1585		1770	5085	1583	1770	5085	1583
Flt Permitted	0.49			0.72	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	885			1343	1585		1770	5085	1583	1770	5085	1583
Volume (vph)	88	1	25	53	1	134	25	710	51	153	891	105
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	105	1	30	60	1	152	27	763	55	165	958	113
RTOR Reduction (vph)	0	13	0	0	129	0	0	0	5	0	0	9
Lane Group Flow (vph)	0	123	0	60	24	0	27	763	50	165	958	104
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases		4			8				2			6
Actuated Green, G (s)	16.8			16.8	16.8		3.3	53.8	53.8	27.4	77.9	77.9
Effective Green, g (s)	16.8			16.8	16.8		3.3	53.8	53.8	27.4	77.9	77.9
Actuated g/C Ratio	0.15			0.15	0.15		0.03	0.49	0.49	0.25	0.71	0.71
Clearance Time (s)	4.0			4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	135			205	242		53	2487	774	441	3601	1121
v/s Ratio Prot					0.10		c0.02	c0.15		c0.09	0.19	
v/s Ratio Perm		c0.15			0.04					0.03		0.07
v/c Ratio		0.91			0.29	0.10		0.51	0.31	0.06	0.37	0.27
Uniform Delay, d1	45.9			41.3	40.1		52.6	16.9	14.8	34.2	5.8	5.0
Progression Factor	1.00			1.00	1.00		0.77	1.06	0.98	0.89	0.91	0.93
Incremental Delay, d2	51.7			0.8	0.2		6.0	0.3	0.1	0.5	0.2	0.2
Delay (s)	97.6			42.1	40.3		46.4	18.2	14.7	31.1	5.4	4.8
Level of Service		F			D	D		D	B	B	C	A
Approach Delay (s)	97.6					40.8			18.9			8.8
Approach LOS		F				D			B			A

Intersection Summary

HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
19: Rosedale Hwy & Calloway Drive

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑	↑↑	2	↑↑	↑↑	2	↑↑	2	↑↑	↑↑	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.97	0.91	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3400	4550	1583	3367	4673	1538	3367	4821	3303	4940	1553	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3400	4550	1583	3367	4673	1538	3367	4821	3303	4940	1553	
Volume (vph)	189	781	209	239	926	211	243	1097	211	232	1143	110
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	203	840	225	254	985	224	259	1167	224	247	1216	117
RTOR Reduction (vph)	0	0	20	0	0	20	0	0	0	0	0	12
Lane Group Flow (vph)	203	840	205	254	985	204	259	1391	0	247	1216	105
Heavy Vehicles (%)	3%	14%	2%	4%	11%	5%	4%	5%	5%	6%	5%	4%
Turn Type	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	5	2	1	6	3	8	7	4				
Permitted Phases			2		6							4
Actuated Green, G (s)	6.8	32.1	32.1	8.8	34.1	34.1	7.8	34.8	7.0	34.0	34.0	
Effective Green, g (s)	9.1	35.0	35.0	11.1	37.0	37.0	10.0	37.8	9.2	37.0	37.0	
Actuated g/C Ratio	0.08	0.32	0.32	0.10	0.34	0.34	0.09	0.35	0.08	0.34	0.34	
Clearance Time (s)	6.3	6.9	6.9	6.3	6.9	6.9	6.2	7.0	6.2	7.0	7.0	
Vehicle Extension (s)	2.0	5.9	5.9	2.0	6.5	6.5	2.0	4.3	2.0	4.3	4.3	
Lane Grp Cap (vph)	284	1460	508	343	1585	522	309	1670	279	1675	527	
v/s Ratio Prot	0.06	0.18	c0.08	c0.21		c0.08	c0.29		0.07	0.25		
v/s Ratio Perm			0.14		0.15							0.08
v/c Ratio	0.71	0.58	0.40	0.74	0.62	0.39	0.84	0.83	0.89	0.73	0.20	
Uniform Delay, d1	48.7	30.9	28.9	47.6	30.2	27.5	48.8	32.7	49.4	31.6	25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.9	1.1	1.4	7.3	1.4	1.5	17.0	5.0	26.0	2.8	0.8	
Delay (s)	55.7	31.9	30.3	54.9	31.6	29.0	65.7	37.8	75.4	34.4	26.4	
Level of Service	E	C	C	D	C	C	E	D	E	C	C	
Approach Delay (s)		35.5			35.3			42.2		40.2		
Approach LOS		D			D			D		D		
Intersection Summary												
HCM Average Control Delay		38.5			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		109.1			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		69.1%			ICU Level of Service			C				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Rosedale Hwy & Coffee Road

7/20/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑
Ideal Flow (vphol)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Frt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3335	4550	1538	3367	4715	1553	4848	4940	1538	3303	4940	1538
Frt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3335	4550	1538	3367	4715	1553	4848	4940	1538	3303	4940	1538
Volume (vph)	190	1247	651	582	1045	235	739	1333	296	193	778	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	200	1313	685	613	1100	247	778	1403	312	208	837	140
RTOR Reduction (vph)	0	0	39	0	0	26	0	0	39	0	0	13
Lane Group Flow (vph)	200	1313	646	613	1100	221	778	1403	273	208	837	127
Heavy Vehicles (%)	5%	14%	5%	4%	10%	4%	5%	5%	5%	6%	5%	5%
Turn Type	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	5	2	1	6	6	3	8	8	7	4		
Permitted Phases			2		6			8			4	
Actuated Green, G (s)	9.9	39.5	39.5	8.7	38.3	38.3	7.8	38.4	38.4	6.4	37.0	37.0
Effective Green, g (s)	12.2	42.5	42.5	11.0	41.3	41.3	10.0	41.9	41.9	8.6	40.5	40.5
Actuated g/C Ratio	0.10	0.35	0.35	0.09	0.34	0.34	0.08	0.35	0.35	0.07	0.34	0.34
Clearance Time (s)	6.3	7.0	7.0	6.3	7.0	7.0	6.2	7.5	7.5	6.2	7.5	7.5
Vehicle Extension (s)	2.0	4.6	4.6	2.0	4.9	4.9	2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)	339	1611	545	309	1623	534	404	1725	537	237	1667	519
v/s Ratio Prot	0.06	0.29	c0.18	0.23		c0.16	c0.28		0.06	0.17		
v/s Ratio Perm			0.45		0.16			0.20			0.09	
v/c Ratio	0.59	0.82	1.19	1.98	0.68	0.41	1.93	0.81	0.51	0.88	0.50	0.24
Uniform Delay, d1	51.5	35.2	38.8	54.5	33.7	30.1	55.0	35.6	30.9	55.2	31.7	28.7
Progression Factor	1.00	1.00	1.00	1.07	1.18	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	4.7	101.0	449.0	1.2	1.3	426.7	4.3	3.4	27.7	11	11
Delay (s)	53.2	39.8	139.8	507.4	40.9	41.2	480.7	39.8	34.3	82.9	32.8	29.8
Level of Service	D	D	F	F	D	D	F	D	C	F	C	C
Approach Delay (s)		72.2			186.8			176.7			41.2	
Approach LOS		E			F			F			D	

Intersection Summary

HCM Average Control Delay	129.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: Stockdale Highway & Coffee Road

7/20/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.97	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00	1.00	0.85	0.85
Frt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	5036	1583	3433	5085	1583	3433	4979		3400	5085	1583
Frt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5036	1583	3433	5085	1583	3433	4979		3400	5085	1583
Volume (vph)	430	639	120	250	591	403	203	1415	229	279	1438	162
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	462	687	129	269	635	433	214	1489	241	294	1514	171
RTOR Reduction (vph)	0	0	16	0	0	29	0	0	0	0	0	19
Lane Group Flow (vph)	462	687	113	269	635	404	214	1730	0	294	1514	152
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Prot		Perm	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	16.9	20.0	20.0	26.7	29.8	29.8	10.0	42.3		11.0	43.3	43.3
Effective Green, g (s)	16.9	22.0	22.0	26.7	31.8	31.8	10.0	44.3		11.0	45.3	45.3
Actuated g/C Ratio	0.14	0.18	0.18	0.22	0.27	0.27	0.08	0.37		0.09	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	483	923	290	764	1348	419	286	1838		312	1920	598
v/s Ratio Prot	c0.13	0.14		0.08	0.12		0.06	c0.35		c0.09	0.30	
v/s Ratio Perm			0.08			0.27						0.11
v/c Ratio	0.96	0.74	0.39	0.35	0.47	0.96	0.75	0.94		0.94	0.79	0.25
Uniform Delay, d1	51.2	46.3	43.1	39.4	37.0	43.5	53.8	36.6		54.2	33.1	25.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	29.7	2.9	0.3	0.1	0.1	34.1	9.0	11.1		35.5	3.4	1.0
Delay (s)	80.8	49.2	43.4	39.5	37.1	77.6	62.8	47.7		89.7	36.5	26.7
Level of Service	F	D	D	D	D	E	E	D		F	D	C
Approach Delay (s)		60.1			50.7			49.3			43.5	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	50.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: Rosedale Hwy & Mohawk

7/20/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓	↑↑	↑	↑↑↓	↑↑	↑	↑↓	↑↑	↑	↑↓	↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.94	0.91	1.00	0.94	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2968	4715	1324	4848	4803	1583	3688	5085	1538	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2968	4715	1324	4848	4803	1583	3688	5085	1538	3433	5085	1583
Volume (vph)	49	1510	762	696	1442	9	640	45	667	19	90	25
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.84	0.84	0.84
Adj. Flow (vph)	52	1589	802	733	1518	9	681	48	710	23	107	30
RTOR Reduction (vph)	0	0	38	0	0	5	0	0	29	0	0	5
Lane Group Flow (vph)	52	1589	765	733	1518	4	681	48	681	23	107	25
Heavy Vehicles (%)	18%	10%	22%	5%	8%	2%	38%	2%	5%	2%	2%	2%
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	4.8	42.7	42.7	7.9	45.8	45.8	18.7	40.8	40.8	3.6	25.7	25.7
Effective Green, g (s)	7.1	45.0	45.0	10.2	48.1	48.1	20.9	43.0	43.0	5.8	27.9	27.9
Actuated g/C Ratio	0.06	0.38	0.38	0.08	0.40	0.40	0.17	0.36	0.36	0.05	0.23	0.23
Clearance Time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	176	1768	497	412	1925	635	642	1822	551	166	1182	368
v/s Ratio Prot	0.02	0.34		c0.15	0.32		c0.18	0.01		0.01	0.02	
v/s Ratio Perm			0.61			0.01			0.46			0.02
v/c Ratio	0.30	0.90	1.54	1.78	0.79	0.01	1.06	0.03	1.24	0.14	0.09	0.07
Uniform Delay, d1	54.1	35.4	37.5	54.9	31.5	21.6	49.5	24.9	38.5	54.7	36.1	35.9
Progression Factor	0.88	1.28	1.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	6.5	250.4	360.3	3.4	0.0	52.7	0.0	121.3	0.4	0.0	0.1
Delay (s)	48.4	51.6	299.9	415.2	34.9	21.6	102.3	24.9	159.8	55.1	36.1	36.0
Level of Service	D	D	F	F	C	C	F	C	F	E	D	D
Approach Delay (s)		133.1			158.2			128.1			38.8	
Approach LOS		F			F			F			D	

Intersection Summary

HCM Average Control Delay	138.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

34: Mohawk Street & California Avenue

7/20/2012

Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓	↑↓	↑	↔	↑↓	↑↓	↑↓↔	↑↓	↑	↑↓↑	↑↓
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.88	0.95	0.95		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1685	2787	1665	1743		3433	5045		1770	4988	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1685	2787	1665	1743		3433	5045		1770	4988	1583
Volume (vph)	385	86	1050	104	133	11	973	932	51	88	1294	453
Peak-hour factor, PHF	0.94	0.94	0.94	0.88	0.88	0.88	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	410	91	1117	118	151	12	1024	981	54	93	1362	477
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	0	0	0	23
Lane Group Flow (vph)	250	251	1051	118	163	0	1024	1035	0	93	1362	454
Heavy Vehicles (%)	2%	7%	2%	3%	2%	8%	2%	2%	2%	2%	4%	2%
Turn Type	Split		pm+ov	Split			Prol			Prot		Perm
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)	19.1	19.1	47.9	8.0	8.0		28.8	56.8		7.8	35.8	35.8
Effective Green, g (s)	20.4	20.4	49.2	8.0	8.0		28.8	57.8		7.8	36.8	36.8
Actuated g/C Ratio	0.19	0.19	0.45	0.07	0.07		0.26	0.53		0.07	0.33	0.33
Clearance Time (s)	5.3	5.3	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	1.0	1.5	1.5		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	312	312	1348	121	127		899	2651		126	1669	530
v/s Ratio Prot	0.15	0.15	c0.22	0.07	c0.09		c0.30	0.21		0.05	0.27	
v/s Ratio Perm			0.18									0.30
v/c Ratio	0.80	0.80	0.78	0.98	1.28		1.14	0.39		0.74	0.82	0.86
Uniform Delay, d1	42.9	42.9	25.8	50.9	51.0		40.6	15.6		50.1	33.5	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	13.0	13.2	2.7	73.2	174.5		76.1	0.4		17.5	4.5	16.2
Delay (s)	55.9	56.1	28.5	124.1	225.5		116.7	16.0		67.6	38.0	50.3
Level of Service	E	E	C	F	F		F	B		E	D	D
Approach Delay (s)		37.0			182.9			66.1			42.5	
Approach LOS		D		F			E			D		
Intersection Summary												
HCM Average Control Delay		55.9					HCM Level of Service		E			
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		110.0					Sum of lost time (s)		12.0			
Intersection Capacity Utilization		86.1%					ICU Level of Service		E			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

35: Stockdale Highway & California Avenue

7/20/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.97		0.91	0.97	0.91
Frt	1.00	0.97		1.00	1.00		0.85	1.00		0.99	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		1.00	0.95		1.00	0.95	1.00
Satd. Flow (prot)	3433	4885		3273	4759		1583	3400		5012	3303	4893
Flt Permitted	0.95	1.00		0.95	1.00		1.00	0.95		1.00	0.95	1.00
Satd. Flow (perm)	3433	4885		3273	4759		1583	3400		5012	3303	4893
Volume (vph)	544	1037		239	175		1143	102		374	1104	
Peak-hour factor, PHF	0.95	0.95		0.95	0.94		0.94	0.94		0.94	0.94	
Adj. Flow (vph)	573	1092		252	186		1216	109		398	1174	
RTOR Reduction (vph)	0	0		0	0		45	0		0	0	
Lane Group Flow (vph)	573	1344		0	186		1216	64		398	1283	
Heavy Vehicles (%)	2%	3%		4%	7%		9%	2%		3%	2%	
Turn Type	Prot		Prot		Perm		Prot		Prot		Prot	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	17.0	34.7		8.0	25.7		25.7	12.0		35.7	13.0	36.7
Effective Green, g (s)	17.0	36.0		8.0	27.0		27.0	12.0		37.0	13.0	38.0
Actuated g/C Ratio	0.15	0.33		0.07	0.25		0.25	0.11		0.34	0.12	0.35
Clearance Time (s)	4.0	5.3		4.0	5.3		5.3	4.0		5.3	4.0	5.3
Vehicle Extension (s)	0.5	2.0		0.5	2.0		2.0	0.5		2.0	0.5	2.0
Lane Grp Cap (vph)	531	1599		238	1168		389	371		1686	390	1690
v/s Ratio Prot	c0.17	0.28		0.06	c0.26		c0.12	0.26		0.10	0.31	
v/s Ratio Perm						0.07						0.39
v/c Ratio	1.08	0.84		0.78	1.04		0.16	1.07		0.76	0.82	0.91
Uniform Delay, d1	46.5	34.3		50.1	41.5		32.6	49.0		32.6	47.3	34.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	62.1	5.5		14.2	37.7		0.9	67.5		3.3	11.9	8.8
Delay (s)	108.6	39.8		64.3	79.2		33.5	116.5		35.9	59.3	43.2
Level of Service	F	D		E	E		C	F		D	E	F
Approach Delay (s)		60.4			74.0			54.9			59.1	
Approach LOS		E			E			D			E	

Intersection Summary

HCM Average Control Delay	61.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

44: Empire & Truxton Ave

7/24/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑	↑↑↑		↑	↑↑↑		↑	↑		↑	↑↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.95	0.95		
Frt	1.00	1.00		1.00	1.00		1.00	0.85		1.00	0.87		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99		
Satd. Flow (prot)	1770	5084		1770	5066		1770	1583		1681	1529		
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99		
Satd. Flow (perm)	1770	5084		1770	5066		1770	1583		1681	1529		
Volume (vph)	51	1580		3	31	1972	52	13	0	33	219	1	155
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.80	0.80	0.80	0.90	0.90	0.90	
Adj. Flow (vph)	54	1681		3	33	2076	55	16	0	41	243	1	172
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	54	1684		0	33	2131	0	16	41	0	219	197	0
Turn Type	Prot			Prot			Split			Split			
Protected Phases	7	4		3	8		2	2		6	6		
Permitted Phases													
Actuated Green, G (s)	5.6	53.0		3.6	51.0		18.4	18.4		19.0	19.0		
Effective Green, g (s)	5.6	53.0		3.6	51.0		18.4	18.4		19.0	19.0		
Actuated g/C Ratio	0.05	0.48		0.03	0.46		0.17	0.17		0.17	0.17		
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	90	2450		58	2349		296	265		290	264		
v/s Ratio Prot	0.03	c0.33		0.02	c0.42		0.01	c0.03		c0.13	0.13		
v/s Ratio Perm													
v/c Ratio	0.60	0.69		0.57	0.91		0.05	0.15		0.76	0.75		
Uniform Delay, d1	51.1	22.1		52.4	27.3		38.5	39.2		43.3	43.2		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	10.3	0.8		12.2	5.6		0.3	1.2		16.6	17.4		
Delay (s)	61.4	22.9		64.6	32.9		38.8	40.4		59.9	60.6		
Level of Service	E	C		E	C		D	D		E	E		
Approach Delay (s)		24.1			33.3			40.0			60.2		
Approach LOS		C			C			D			E		

Intersection Summary		
HCM Average Control Delay	32.3	HCM Level of Service
HCM Volume to Capacity ratio	0.70	
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	66.6%	ICU Level of Service
Analysis Period (min)	15	C
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

50: Stockdale Hwy & Stine Rd

7/20/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↑	↑		↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.98	
Frt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.99	
Satd. Flow (prot)	1770	3408		1770	3379			1803	1568		1792	
Frt Permitted	0.95	1.00		0.95	1.00			0.97	1.00		0.99	
Satd. Flow (perm)	1770	3408		1770	3379			1803	1568		1792	
Volume (vph)	29	1249	96	276	1280	95	97	79	80	66	130	34
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	31	1329	102	294	1362	101	110	90	91	75	148	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	31	1431	0	294	1463	0	0	200	74	0	262	0
Heavy Vehicles (%)	2%	5%	2%	2%	6%	2%	3%	2%	3%	3%	2%	3%
Turn Type	Prot			Prot			Split			Perm		Split
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases										3		
Actuated Green, G (s)	2.7	50.5		20.9	68.7			16.1	16.1		17.5	
Effective Green, g (s)	2.2	51.0		20.4	69.2			15.6	15.6		17.0	
Actuated g/C Ratio	0.02	0.42		0.17	0.58			0.13	0.13		0.14	
Clearance Time (s)	3.5	4.5		3.5	4.5			3.5	3.5		3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	32	1448		301	1949			234	204		254	
v/s Ratio Prot	0.02	c0.42		c0.17	0.43			c0.11			c0.15	
v/s Ratio Perm										0.06		
v/c Ratio	0.97	0.99		0.98	0.75			0.85	0.36		1.03	
Uniform Delay, d1	58.9	34.2		49.6	19.0			51.1	47.6		51.5	
Progression Factor	0.90	1.18		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	115.1	16.5		45.1	2.7			24.9	1.1		64.9	
Delay (s)	167.8	56.8		94.6	21.7			76.0	48.7		116.4	
Level of Service	F	E		F	C			E	D		F	
Approach Delay (s)		59.2			33.9			67.5			116.4	
Approach LOS		E			C			E			F	
Intersection Summary												
HCM Average Control Delay		52.0				HCM Level of Service			D			
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		120.0				Sum of lost time (s)			16.0			
Intersection Capacity Utilization		82.1%				ICU Level of Service			E			
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

56: Ming Avenue & New Stine Road

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑		↑↑	↑↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	4958		3433	5061		3433	5085	1560	3433	4949	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	4958		3433	5061		3433	5085	1560	3433	4949	
Volume (vph)	371	1035	187	485	1234	37	74	913	243	17	1135	221
Peak-hour factor, PHF	0.94	0.94	0.94	0.95	0.95	0.95	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	395	1101	199	511	1299	39	80	982	261	18	1207	235
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	395	1300	0	511	1338	0	80	982	251	18	1442	0
Confl. Peds. (#/hr)				2		2		2				2
Turn Type	Prot		Prot		Prot		Prot		Perm		Prot	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	13.6	32.1		17.6	36.1		4.6	36.4	36.4	2.3	34.1	
Effective Green, g (s)	13.6	33.4		17.6	37.4		4.6	37.7	37.7	2.3	35.4	
Actuated g/C Ratio	0.13	0.31		0.16	0.35		0.04	0.35	0.35	0.02	0.33	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	
Lane Grp Cap (vph)	436	1548		565	1769		148	1792	550	74	1637	
v/s Ratio Prot	0.12	c0.26		c0.15	0.26		c0.02	0.19		0.01	c0.29	
v/s Ratio Perm									0.17			
v/c Ratio	0.91	0.84		0.90	0.76		0.54	0.55	0.46	0.24	0.88	
Uniform Delay, d1	46.1	34.3		43.9	30.8		50.2	27.8	26.7	51.5	33.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.6	5.7		17.6	3.1		2.2	0.2	0.2	0.6	5.8	
Delay (s)	67.7	40.0		61.4	33.8		52.3	28.0	27.0	52.1	39.6	
Level of Service	E	D		E	C		D	C	C	D	D	
Approach Delay (s)		46.4			41.5			29.3			39.7	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM Average Control Delay		39.8			HCM Level of Service				D			
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		107.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		79.7%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

62: White Lane & Wible Road

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑		2	↑↑		2	↑↑		2	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.90		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4982		3400	4988	1546	3433	3539	1546	3433	3539	1560
Fl _t Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4982		3400	4988	1546	3433	3539	1546	3433	3539	1560
Volume (vph)	108	1549	95	424	1501	262	163	326	515	333	372	158
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor (vph)	100%	100%	100%	100%	130%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	114	1631	100	446	2054	276	175	351	554	358	400	170
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	77	0	0	8
Lane Group Flow (vph)	114	1731	0	446	2054	237	175	351	477	358	400	162
Conf. Peds. (#/hr)				2		2		2		2		2
Heavy Vehicles (%)	2%	2%	2%	3%	4%	3%	2%	2%	3%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	5.0	36.1		11.0	42.1	42.1	27.3	33.9	33.9	10.0	16.6	16.6
Effective Green, g (s)	5.0	37.8		11.0	43.8	43.8	27.3	35.2	35.2	10.0	17.9	17.9
Actuated g/C Ratio	0.05	0.34		0.10	0.40	0.40	0.25	0.32	0.32	0.09	0.16	0.16
Clearance Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	156	1712		340	1986	616	852	1132	495	312	576	254
v/s Ratio Prot	0.03	c0.35		c0.13	c0.41		0.05	0.10		c0.10	0.11	
v/s Ratio Perm						0.18			0.36		0.11	
v/c Ratio	0.73	1.01		1.31	1.03	0.38	0.21	0.31	0.96	1.15	0.69	0.64
Uniform Delay, d1	51.8	36.1		49.5	33.1	23.5	32.8	28.2	36.8	50.0	43.5	43.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.0	24.5		159.8	29.6	1.8	0.0	0.1	31.0	87.0	2.9	3.8
Delay (s)	65.9	60.6		209.3	62.7	25.3	32.8	28.3	67.8	147.0	46.4	46.8
Level of Service	E	E		F	E	C	C	C	E	F	D	D
Approach Delay (s)		60.9			82.6			49.3			85.3	
Approach LOS		E			F			D			F	

Intersection Summary

HCM Average Control Delay	71.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

63: White Lane & SR-99 SB Ramps

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↑↑↑								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0		4.0
Lane Util. Factor	0.86	1.00		0.91						0.97		0.88
Frpb, ped/bikes	1.00	1.00		0.99						1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00						1.00		1.00
Fr _t	1.00	0.85		0.95						1.00		0.85
Fit Protected	1.00	1.00		1.00						0.95		1.00
Satd. Flow (prot)	6346	1583		4739						3433		2760
Fit Permitted	1.00	1.00		1.00						0.95		1.00
Satd. Flow (perm)	6346	1583		4739						3433		2760
Volume (vph)	0	1922	475	0	889	500	0	0	0	726	0	1299
Peak-hour factor, PHF	0.95	0.95	0.95	0.94	0.94	0.94	0.93	0.93	0.93	0.95	0.95	0.95
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	150%
Adj. Flow (vph)	0	2023	500	0	946	532	0	0	0	764	0	2051
RTOR Reduction (vph)	0	0	204	0	113	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	2023	296	0	1365	0	0	0	0	764	0	2046
Confl. Peds. (#/hr)						2						
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	3%
Turn Type			Perm							custom		custom
Protected Phases		2			6					4		
Permitted Phases			2							4		4
Actuated Green, G (s)	21.8	21.8		21.8						56.4		56.4
Effective Green, g (s)	24.1	24.1		24.1						58.0		58.0
Actuated g/C Ratio	0.27	0.27		0.27						0.64		0.64
Clearance Time (s)	6.3	6.3		6.3						5.6		5.6
Vehicle Extension (s)	4.3	4.3		4.9						3.4		3.4
Lane Grp Cap (vph)	1697	423		1268						2210		1777
v/s Ratio Prot	c0.32			0.31						0.22		
v/s Ratio Perm		0.32									0.74	
v/c Ratio	1.19	0.70		1.08						0.35		1.15
Uniform Delay, d1	33.0	29.7		33.0						7.4		16.0
Progression Factor	1.00	1.00		1.00						1.00		1.00
Incremental Delay, d2	92.6	5.8		48.6						0.1		75.1
Delay (s)	125.6	35.5		81.6						7.5		91.2
Level of Service	F	D		F						A		F
Approach Delay (s)	107.7			81.6			0.0				68.4	
Approach LOS	F			F			A				E	
Intersection Summary												
HCM Average Control Delay	85.9			HCM Level of Service			F					
HCM Volume to Capacity ratio	1.17											
Actuated Cycle Length(s)	90.1			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	103.3%			ICU Level of Service			G					
Analysis Period (min)	15											

c = Critical Lane Group

HCM Signalized Intersection Capacity Analysis

64: White Lane & SR-99 NB Ramps

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0				
Lane Util. Factor	0.86	0.86		0.91	1.00	1.00			1.00			
Frpb, ped/bikes	1.00	1.00		1.00	0.98	1.00			1.00			
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00			1.00			
Fr _t	0.95	0.85		1.00	0.85	1.00			0.85			
Flt Protected	1.00	1.00		1.00	1.00	0.95			1.00			
Satd. Flow (prot)	4550	1335		5085	1550	1752			1538			
Flt Permitted	1.00	1.00		1.00	1.00	0.95			1.00			
Satd. Flow (perm)	4550	1335		5085	1550	1752			1538			
Volume (vph)	0	1188	1460	0	996	595	393	0	287	0	0	0
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1238	1521	0	1060	633	427	0	312	0	0	0
RTOR Reduction (vph)	0	134	0	0	0	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	1675	950	0	1060	633	427	0	292	0	0	0
Confl. Peds. (#/hr)							2					
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%	3%	2%	5%	2%	2%	2%
Turn Type			Free			Free	Prot		custom			
Protected Phases	2			6		8						
Permitted Phases			Free			Free			8			
Actuated Green, G (s)	29.2	58.3		29.2	58.3	19.0			19.0			
Effective Green, g (s)	30.1	58.3		30.1	58.3	20.2			20.2			
Actuated g/C Ratio	0.52	1.00		0.52	1.00	0.35			0.35			
Clearance Time (s)	4.9			4.9		5.2			5.2			
Vehicle Extension (s)	5.7			5.7		5.3			5.3			
Lane Grp Cap (vph)	2349	1335		2625	1550	607			533			
v/s Ratio Prot	0.40			0.21		0.24						
v/s Ratio Perm		0.71			0.41				0.20			
v/c Ratio	0.71	0.71		0.40	0.41	0.70			0.55			
Uniform Delay, d1	10.8	0.0		8.6	0.0	16.5			15.4			
Progression Factor	1.00	1.00		1.00	1.00	1.00			1.00			
Incremental Delay, d2	1.4	3.2		0.3	0.8	4.9			2.2			
Delay (s)	12.2	3.2		8.9	0.8	21.3			17.6			
Level of Service	B	A		A	A	C			B			
Approach Delay (s)	9.1			5.9		19.7			0.0			
Approach LOS		A		A			B			A		
Intersection Summary												
HCM Average Control Delay	9.6			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.71											
Actuated Cycle Length (s)	58.3			Sum of lost time (s)			0.0					
Intersection Capacity Utilization	62.3%			ICU Level of Service			B					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

65: White Lane & Hughes Lane

7/24/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑↑		2	↑↑↑		2	↑↑		1	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	4908		1770	5006		1770	3539	1553	1770	3172	
Fl _t Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	4908		1770	5006		1770	3539	1553	1770	3172	
Volume (vph)	231	957	258	139	998	103	244	183	94	131	191	326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	246	1018	274	149	1073	111	265	199	102	142	208	354
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	4	0	0	0
Lane Group Flow (vph)	246	1292	0	149	1184	0	265	199	98	142	562	0
Confl. Peds. (#/hr)				2		3			5			3
Turn Type	Prot		Prot		Prot		Prot		Perm		Prot	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	17.4	38.4		14.4	35.4		17.0	12.4	12.4	26.2	21.6	
Effective Green, g (s)	17.4	39.7		14.4	36.7		17.0	13.7	13.7	26.2	22.9	
Actuated g/C Ratio	0.16	0.36		0.13	0.33		0.15	0.12	0.12	0.24	0.21	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	280	1771		232	1670		274	441	193	422	660	
v/s Ratio Prot	c0.14	c0.26		0.08	0.24		c0.15	0.06		c0.08	c0.18	
v/s Ratio Perm										0.07		
v/c Ratio	0.88	0.73		0.64	0.71		0.97	0.45	0.51	0.34	1.09dr	
Uniform Delay, d1	45.3	30.5		45.4	32.0		46.2	44.7	45.0	34.7	41.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.6	2.7		4.5	2.6		44.6	0.3	0.8	0.2	9.9	
Delay (s)	69.8	33.2		49.9	34.6		90.9	44.9	45.7	34.9	51.9	
Level of Service	E	C		D	C		F	D	D	C	D	
Approach Delay (s)		39.0			36.3			66.6			48.4	
Approach LOS	D			D			E			D		
Intersection Summary												
HCM Average Control Delay		43.5										
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		110.0										
Intersection Capacity Utilization		77.5%										
Analysis Period (min)		15										
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Ming Avenue & H Street

7/24/2012

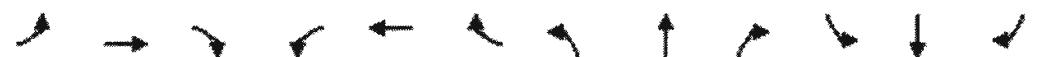


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	↑↓		1	↑↓		1	↑↓		1	↑↓	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	0.98		1.00	0.99		1.00	0.89		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3390		1770	3505		1770	3126		1770	3539	1559
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3390		1770	3505		1770	3126		1770	3539	1559
Volume (vph)	101	710	136	150	895	55	219	25	62	74	43	105
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	109	763	146	161	962	59	243	28	69	84	49	119
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	11
Lane Group Flow (vph)	109	909	0	161	1021	0	243	97	0	84	49	108
Confl. Peds. (#/hr)			2			3			2			2
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4									6	
Actuated Green, G (s)	8.9	33.6		12.3	37.0		17.5	38.2		7.3	28.0	28.0
Effective Green, g (s)	8.9	34.9		12.3	38.3		17.5	39.5		7.3	29.3	29.3
Actuated g/C Ratio	0.08	0.32		0.11	0.35		0.16	0.36		0.07	0.27	0.27
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	4.0		1.0	4.0		1.0	4.0		1.0	4.0	4.0
Lane Grp Cap (vph)	143	1076		198	1220		282	1123		117	943	415
v/s Ratio Prot	0.06	0.27		0.09	0.29		0.14	0.03		0.05	0.01	
v/s Ratio Perm												0.08
v/c Ratio	0.76	0.84		0.81	0.84		0.86	0.09		0.72	0.05	0.26
Uniform Delay, d1	49.5	35.0		47.7	33.0		45.1	23.3		50.3	30.0	31.8
Progression Factor	1.00	1.00		0.88	0.95		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.2	6.5		16.9	4.3		22.0	0.2		16.0	0.1	1.5
Delay (s)	68.7	41.5		58.7	35.7		67.1	23.5		66.3	30.1	33.3
Level of Service	E	D		E	D		E	C		E	C	C
Approach Delay (s)		44.4			38.8			54.6			43.7	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay		43.2					HCM Level of Service			D		
HCM Volume to Capacity ratio		0.68										
Actuated Cycle Length (s)		110.0					Sum of lost time (s)		16.0			
Intersection Capacity Utilization		74.2%					ICU Level of Service			D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

73: Ming Avenue & Chester Avenue

7/24/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑		2	↑↑		2	↑↑		2	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.99
Fpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	0.98		1.00	0.99		1.00	0.98		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	3395		1752	3513		1719	3450		1770	3539	1561
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1752	3395		1752	3513		1719	3450		1770	3539	1561
Volume (vph)	187	528	103	137	649	25	125	443	56	52	844	305
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	201	568	111	147	698	27	136	482	61	56	908	328
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	14
Lane Group Flow (vph)	201	679	0	147	725	0	136	543	0	56	908	314
Confl. Peds. (#/hr)				2		5		4				2
Heavy Vehicles (%)	3%	3%	6%	3%	2%	5%	5%	2%	8%	2%	2%	2%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases					6							4
Actuated Green, G (s)	14.3	39.4		12.0	37.1		11.4	34.5		5.9	29.0	29.0
Effective Green, g (s)	14.3	40.3		12.0	38.0		11.4	35.8		5.9	30.3	30.3
Actuated g/C Ratio	0.13	0.37		0.11	0.35		0.10	0.33		0.05	0.28	0.28
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	228	1244		191	1214		178	1123		95	975	430
v/s Ratio Prot	c0.11	0.20		0.08	c0.21		c0.08	0.16		0.03	c0.26	
v/s Ratio Perm												0.21
v/c Ratio	0.88	0.55		0.77	0.60		0.76	0.48		0.59	0.93	0.73
Uniform Delay, d1	47.0	27.6		47.7	29.7		48.0	29.7		50.9	38.8	36.1
Progression Factor	0.54	0.95		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.9	1.2		15.4	2.2		15.9	0.1		5.9	14.8	5.2
Delay (s)	47.0	27.3		63.0	31.9		63.9	29.8		56.8	53.6	41.3
Level of Service	D	C		E	C		E	C		E	D	D
Approach Delay (s)		31.8			37.1			36.7			50.6	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2038 ALTERNATIVE C
AM Peak

**BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS
YR2038 A11.C INTERSECTION ANALYSIS RESULTS - AM PEAK**

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
1. I-5 SB Ramps @ Stockdale Hwy						
SB - I-5 SB Off ramp - STOP Control	322	333	103%	5.4	A	
EB - Stockdale Hwy	45	44	98%	0.0	A	A
WB - Stockdale Hwy	137	119	87%	0.1	A	
<i>Intersection Total</i>	504	496	98%			
2. I-5 NB Ramps @ Stockdale Hwy						
NB - I-5 NB Off Ramp - STOP Control	61	69	113%	4.0	A	
EB - Stockdale Hwy	363	374	103%	0.1	A	A
WB - Stockdale Hwy	556	473	85%	0.0	A	
<i>Intersection Total</i>	980	916	93%			
4. Enos Ln @ Stockdale Hwy						
NB - Enos Ln	195	196	101%	14.1	B	
SB - Enos Ln	306	302	99%	20.3	C	
EB - Stockdale Hwy	372	399	107%	16.5	B	B
WB - Stockdale Hwy	738	714	97%	14.2	B	
<i>Intersection Total</i>	1,611	1,611	100%	15.9		
5. SR-43 @ I-5 NB Ramps						
NB - SR-43	224	215	96%	1.0	A	
SB - SR-43	751	747	99%	0.0	A	A
WB - I-5 NB Off Ramp - STOP Control	68	65	96%	3.3	A	
<i>Intersection Total</i>	1,043	1,027	98%			
6. SR-43 @ I-5 SB Ramps						
NB - SR-43	204	201	99%	0.0	A	
SB - SR-43	581	547	94%	0.2	A	A
EB - I-5 SB Ramp - STOP Control	33	23	70%	4.6	A	
<i>Intersection Total</i>	818	771	94%			
7. Nord Rd @ Stockdale Hwy						
NB - Nord Rd	468	468	100%	8.2	A	
SB - Nord Rd	126	124	98%	31.6	C	
EB - Stockdale Hwy	449	447	100%	46.7	D	D
WB - Stockdale Hwy	972	970	100%	42.1	D	
<i>Intersection Total</i>	2,015	2,009	100%	34.6		
9. Heath Rd @ Stockdale Rd						
NB - Heath Rd	951	952	100%	25.1	C	
SB - Heath Rd	347	345	99%	74.4	E	
EB - Stockdale Hwy	1,378	1,366	99%	18.1	B	
WB - Stockdale Hwy	1,792	1,741	97%	29.4	C	
<i>Intersection Total</i>	4,468	4,404	99%	28.5		
10. WSP @ Stockdale Off/ On						

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
NB - Stockdale Hwy	490	485	99%	24.2	C	
EB - Stockdale Hwy	2,489	2,471	99%	8.5	A	
WB - WSP	1,616	1,579	98%	6.5	A	
<i>Intersection Total</i>	4,595	4,535	99%	9.5		
11. West Beltway @ WSP WB Ramps						
NB - West Beltway	1,499	1,511	101%	7.9	A	
SB - West Beltway	2,574	2,566	100%	13.4	B	
WB - WSP WB Off Ramp	1,485	1,434	97%	8.5	A	
<i>Intersection Total</i>	5,558	5,511	99%	9.6		
12. West Beltway @ WSP EB Ramps						
NB - West Beltway	1,769	1,768	100%	4.5	A	
SB - West Beltway	1,185	1,193	101%	2.5	A	
EB - WSP EB off Ramp	685	686	100%	26.2	C	
<i>Intersection Total</i>	3,639	3,647	100%	7.9		
14. Allen Rd @ Brimhall Rd						
NB - Allen Rd	1,282	1,212	95%	30.2	C	
SB - Allen Rd	1,476	1,487	101%	29.2	C	
EB - Brimhall Rd	754	743	99%	17.8	B	
WB - Brimhall Rd	316	313	99%	25.2	C	
<i>Intersection Total</i>	3,828	3,755	98%	26.9		
15. Allen Rd @ WSP WB Ramps						
NB - Allen Rd	763	750	98%	20.6	C	
SB - Allen Rd	1,814	1,835	101%	27.9	C	
WB - Off Ramp/On Ramp WSP WB	1,140	1,073	94%	10.5	B	
<i>Intersection Total</i>	3,717	3,658	98%	19.3		
16. Allen Rd @ WSP EB Ramps						
NB - Allen Rd	1,708	1,707	100%	20.5	C	
SB - Allen Rd	2,066	2,039	99%	14.1	B	
EB - WSP EB off Ramp	360	368	102%	18.4	B	
<i>Intersection Total</i>	4,134	4,114	100%	17.1		
18. Allen Rd @ Stockdale Hwy						
NB - Allen Rd	1,246	1,244	100%	43.2	D	
SB - Allen Rd	1,194	1,136	95%	17.3	B	
EB - Stockdale Hwy	1,313	1,291	98%	42.9	D	
WB - Stockdale Hwy	856	848	99%	27.2	C	
<i>Intersection Total</i>	4,609	4,519	98%	33.6		
20. Calloway Dr @ Brimhall Rd						
NB - Calloway Dr	1,686	1,596	95%	32.4	C	
SB - Calloway Dr	1,649	1,626	99%	32.3	C	

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
EB - Brimhall Rd	1,348	1,356	101%	30.6	C	
WB - Brimhall Rd	913	918	101%	30.9	C	
<i>Intersection Total</i>	5,596	5,496	98%	31.7		
21. Calloway Dr @ WSP WB Ramps						
NB - Calloway Dr	1,305	1,269	97%	13.9	B	
SB - Calloway Dr	2,111	2,084	99%	8.1	A	
EB - WSP WB on Ramp	725	675	93%	14.8	B	
WB - WSP WB Off Ramp	585	565	97%	5.7	A	B
<i>Intersection Total</i>	4,726	4,593	97%	14.2		
22. Calloway Dr @ WSP EB Ramps						
NB - Calloway Dr	957	940	98%	19.9	B	
SB - Calloway Dr	1,570	1,501	96%	9.2	A	
EB - WSP EB off Ramp	975	944	97%	14.1	B	
<i>Intersection Total</i>	3,502	3,385	97%	13.5		
23. Calloway Dr @ Stockdale Hwy						
NB - Calloway Dr	1,672	1,679	100%	38.7	D	
SB - Calloway Dr	2,197	2,123	97%	48.8	D	
EB - Stockdale Hwy	1,665	1,642	99%	46.7	D	
WB - Stockdale Hwy	652	645	99%	25.5	C	
<i>Intersection Total</i>	6,186	6,089	98%	44.0		
25. Coffee Rd @ Brimhall Rd						
NB - Coffee Rd	1,469	1,526	104%	27.2	C	
SB - Coffee Rd	1,762	1,758	100%	27.3	C	
EB - Brimhall Rd	770	771	100%	19.6	B	
WB - Brimhall Rd	2,171	2,060	95%	31.2	C	
<i>Intersection Total</i>	6,172	6,115	99%	27.6		
27. Coffee Rd @ WSP EB Ramp						
NB - Coffee Rd	2,135	2,130	100%	14.7	B	
SB - Coffee Rd	2,436	2,483	102%	5.4	A	
EB - WSP EB off Ramp	1,051	1,100	105%	17.2	B	
<i>Intersection Total</i>	5,622	5,713	102%	11.1		
28. Coffee Rd @ Truxtun Ave						
NB - Coffee Rd	2,658	2,652	100%	8.1	A	
SB - Coffee Rd	1,946	2,026	104%	15.7	B	
WB - Truxtun Ave	572	564	99%	21.5	C	
<i>Intersection Total</i>	5,176	5,242	101%	12.5		
31. Mohawk St @ WSP WB Ramps						
NB - Mohawk St	1,217	1,188	98%	13.4	B	
SB - Mohawk St	1,788	1,707	95%	8.8	A	

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
WB - WSP WB Off Ramp	890	955	107%	13.6	B	
<i>Intersection Total</i>	3,895	3,850	99%	11.4		
32. Mohawk St @ WSP EB Ramps						
NB - Mohawk St	1,131	1,111	98%	32.2	C	
SB - Mohawk St	1,261	1,242	98%	16.0	B	B
EB - WSP EB off Ramp	1,891	1,878	99%	11.4	B	
<i>Intersection Total</i>	4,283	4,231	99%	18.2		
33. Mohawk St @ Truxtun Ave						
NB - Mohawk St	1,635	1,616	99%	26.9	C	
SB - Mohawk St	1,966	1,931	98%	42.9	D	
EB - Truxtun Ave	709	711	100%	21.0	C	C
WB - Truxtun Ave	703	731	104%	35.3	D	
<i>Intersection Total</i>	5,013	4,989	100%	33.5		
36. Airport Dr & State Rd/SR204 WB Ramp						
NB - Airport Dr	1,577	1,589	101%	20.8	C	
SB - Airport Dr	1,679	1,676	100%	21.6	C	
EB - State Rd	249	245	98%	17.1	B	C
WB - SR204 WB Off Ramp	942	677	72%	24.5	C	
<i>Intersection Total</i>	4,447	4,187	94%	21.5		
37. Buck Owens Blvd & SR99 NB Ramp						
NB - SR99 NB Off Ramp	1,760	1,732	98%	6.4	A	
WB - Buck Owens Blvd	507	503	99%	17.4	B	A
<i>Intersection Total</i>	2,267	2,235	99%	8.9		
38. Rio Mirada Dr & Buck Owens Blvd						
NB - Buck Owens Blvd	512	513	100%	28.8	C	
SB - Buck Owens Blvd	117	114	97%	38.1	D	
EB - Rio Mirada Dr	843	780	93%	36.2	D	C
WB - Rio Mirada Dr	162	161	99%	23.2	C	
<i>Intersection Total</i>	1,634	1,568	96%	32.6		
39. SR99 NB Ramps/Sillect Ave & Buck Owens Blvd						
NB - Buck Owens Blvd	1,224	1,183	97%	46.0	D	
SB - Buck Owens Blvd	467	470	101%	47.0	D	
EB - SR99 NB Off Ramp	815	731	90%	33.5	C	D
WB - Sillect Ave	248	246	99%	42.7	D	
<i>Intersection Total</i>	2,754	2,630	95%	42.4		
40. Rosedale Hwy & Camino del Rio Ct						
NB - Camino del Rio Ct	267	263	99%	40.2	D	
SB - Camino del Rio Ct	151	150	99%	48.9	D	
EB - Rosedale Hwy	2,464	2,475	100%	22.5	C	C

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
WB - Rosedale Hwy	2,744	2,632	96%	26.1	C	
<i>Intersection Total</i>	5,626	5,520	98%	32.8		
41. Rosedale Hwy & SR99 SB Ramp						
SB - SR99 SB Off Ramp	1,361	1,344	99%	29.9	C	
EB - Rosedale Hwy	2,021	2,017	100%	13.2	B	
WB - Rosedale Hwy	1,876	1,775	95%	10.4	B	
<i>Intersection Total</i>	5,258	5,136	98%	20.7		
42. Rosedale Hwy & SR99 NB Ramp/Buck Owens Blvd						
NB - SR99 NB Off Ramp	1,765	1,690	96%	51.3	D	
SB - Buck Owens Blvd	506	484	96%	17.3	B	
EB - Rosedale Hwy	2,516	2,507	100%	16.7	B	
WB - 24th St	2,476	2,437	98%	19.9	B	
<i>Intersection Total</i>	7,263	7,118	98%	26.1		
43. 24th St & Oak St						
NB - Oak St	1,198	1,209	101%	32.6	C	
SB - Oak St	85	85	100%	53.2	D	
EB - 24th St	3,173	3,044	96%	38.0	D	
WB - 24th St	3,214	3,229	100%	21.8	C	
<i>Intersection Total</i>	7,670	7,567	99%	30.4		
45. Oak St @ Truxtun Ave						
NB - Oak St	1,654	1,654	100%	53.1	D	
SB - Oak St	1,277	1,274	100%	29.9	C	
EB - Truxtun Ave	1,900	1,770	93%	45.4	D	
WB - Truxtun Ave	888	892	100%	60.6	D	
<i>Intersection Total</i>	5,719	5,590	98%	51.8		
46. California Ave & Chester Ln						
NB - Chester Ln	169	170	101%	36.1	D	
SB - Chester Ln	164	165	101%	31.6	C	
EB - California Ave	1,443	1,426	99%	21.5	C	
WB - California Ave	1,728	1,756	102%	18.4	B	
<i>Intersection Total</i>	3,504	3,517	100%	21.1		
47. California Ave & SR99 SB Ramps/Real Rd						
NB - Real Rd	562	562	100%	24.8	C	
SB - SR99 SB Off Ramp	1,415	1,408	100%	21.1	C	
EB - California Ave	1,676	1,626	97%	113.2	F	
WB - California Ave	1,042	1,088	104%	30.9	C	
<i>Intersection Total</i>	4,695	4,684	100%	58.9		
48. California Ave & SR99 NB Ramps						
NB - SR99 NB Off Ramp	1,050	1,014	97%	15.3	B	

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
SB - Extended Stay Hotel	63	61	97%	22.8	C	
EB - California Ave	1,205	1,381	115%	31.8	C	
WB - California Ave	1,383	1,344	97%	41.5	D	
<i>Intersection Total</i>	3,701	3,800	103%	30.7		
49. California Ave & Oak St						
NB - Oak St	1,150	1,159	101%	40.6	D	
SB - Oak St	929	933	100%	25.3	C	
EB - California Ave	1,875	2,024	108%	22.6	C	
WB - California Ave	799	791	99%	28.0	C	
<i>Intersection Total</i>	4,753	4,907	103%	28.2		
51. Stockdale Hwy & Real Rd						
NB - Real Rd	712	732	103%	44.3	D	
SB - Real Rd	651	653	100%	33.7	C	
EB - Stockdale Hwy	1,295	1,294	100%	43.5	D	
WB - Stockdale Hwy	690	703	102%	60.0	E	
<i>Intersection Total</i>	3,348	3,382	101%	45.2		
53. Stockdale Hwy & Oak St/Wible Rd						
NB - Wible Rd	581	577	99%	28.2	C	
SB - Oak St	396	397	100%	24.0	C	
EB - Stockdale Hwy	717	700	98%	30.1	C	
WB - Stockdale Hwy	517	517	100%	36.1	D	
<i>Intersection Total</i>	2,211	2,191	99%	29.9		
54. SR58 Ramps & Real Rd						
NB - Real Rd	484	483	100%	22.0	C	
SB - Real Rd	938	975	104%	29.8	C	
WB - SR58 WB	775	783	101%	12.7	B	
<i>Intersection Total</i>	2,197	2,241	102%	21.1		
57. Ming Ave & Real Rd						
NB - Real Rd	368	367	100%	25.2	C	
SB - Real Rd	478	478	100%	34.4	C	
EB - Ming Ave	1,892	1,888	100%	24.5	C	
WB - Ming Ave	1,615	1,549	96%	24.7	C	
<i>Intersection Total</i>	4,353	4,282	98%	25.7		
58. Ming Ave & SR99 SB Ramps						
EB - Ming Ave	2,139	2,133	100%	5.0	A	
WB - Ming Ave	875	836	96%	4.8	A	
<i>Intersection Total</i>	3,014	2,969	99%	4.9		
59. Ming Ave & Wible Rd						
NB - Wible Rd	675	673	100%	29.0	C	

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
SB - Wible Rd	283	280	99%	36.4	D	
EB - Ming Ave	2,274	2,227	98%	19.5	B	
WB - Ming Ave	1,096	1,093	100%	16.5	B	
<i>Intersection Total</i>	4,328	4,273	99%	28.1		
60. Ming Ave & SR99 NB Ramps						
NB - Sears	67	68	101%	35.2	D	
SB - SR99 SB Off Ramp	895	888	99%	20.4	C	
EB - Ming Ave	2,144	2,188	102%	45.2	D	
WB - Ming Ave	922	912	99%	19.3	B	
<i>Intersection Total</i>	4,028	4,056	101%	33.8		
61. Ming Ave & Castro Ln						
NB - Castro Ln	100	99	99%	19.8	B	
SB - Castro Ln	233	231	99%	19.1	B	
EB - Ming Ave	1,235	1,242	101%	21.6	C	
WB - Ming Ave	798	793	99%	43.4	D	
<i>Intersection Total</i>	2,366	2,365	100%	28.6		
66. Brundage Ln & H St						
NB - H St	1,096	1,120	102%	19.9	B	
SB - H St	429	427	100%	28.9	C	
EB - Brundage Ln	540	540	100%	29.0	C	
WB - Brundage Ln	437	461	105%	28.4	C	
<i>Intersection Total</i>	2,502	2,548	102%	24.9		
67. SR58 WB Ramp & H St						
NB - H St	1,173	1,188	101%	4.8	A	
SB - H St	553	561	101%	28.9	C	
WB - Richland St	433	452	104%	23.3	C	
<i>Intersection Total</i>	2,159	2,201	102%	14.7		
68. SR58 EB Ramp & H St						
NB - H St	1,214	1,212	100%	19.9	B	
SB - H St	460	475	103%	5.3	A	
EB - SR58 EB Off Ramp	600	628	105%	48.4	D	
<i>Intersection Total</i>	2,274	2,315	102%	24.6		
70. Brundage Ln & Chester Ave						
NB - Chester Ave	895	898	100%	21.5	C	
SB - Chester Ave	658	658	100%	21.4	C	
EB - Brundage Ln	621	603	97%	32.5	C	
WB - Brundage Ln	372	368	99%	25.9	C	
<i>Intersection Total</i>	2,546	2,527	99%	24.9		
71. SR58 WB Ramp & Chester Ave						

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
NB - Chester Ave	697	709	102%	1.3	A	
SB - Chester Ave	759	748	99%	31.3	C	
WB - Richland St	825	775	94%	28.3	C	
<i>Intersection Total</i>	2,281	2,232	98%	20.7		
72. SR58 EB Ramp & Chester Ave						
NB - Chester Ave	808	806	100%	25.4	C	
SB - Chester Ave	932	875	94%	19.5	B	
EB - Frontage Rd	610	620	102%	29.3	C	
<i>Intersection Total</i>	2,350	2,301	98%	27.7		
74. Brundage Ln & Union Ave						
NB - Union Ave	2,007	1,767	88%	48.2	D	
SB - Union Ave	1,863	1,859	100%	45.4	D	
EB - Brundage Ln	434	434	100%	28.3	C	
WB - Brundage Ln	1,141	1,117	98%	25.7	C	
<i>Intersection Total</i>	5,445	5,177	95%	44.6		
75. Brundage Ln & SR58 WB Ramps (Union Ave)						
NB - SR58 WB Off Ramp	825	795	96%	23.0	C	
SB - Liggett St	76	74	97%	24.5	C	
EB - Brundage Ln	645	562	87%	14.5	B	
WB - Brundage Ln	463	465	100%	41.8	D	
<i>Intersection Total</i>	2,009	1,896	94%	25.1		
76. SR58 EB Ramp & Union Ave						
NB - Union Ave	1,455	1,452	100%	21.8	C	
SB - Union Ave	1,103	1,160	105%	19.0	B	
EB - SR58 EB Off Ramp	1,365	979	72%	8.8	A	
<i>Intersection Total</i>	3,923	3,591	92%	19.7		
77. Cottonwood Rd & Brundage Ln						
NB - Cottonwood Rd	854	818	96%	18.5	B	
SB - Cottonwood Rd	252	248	98%	31.8	C	
EB - Brundage Ln	223	223	100%	30.6	C	
WB - Brundage Ln	553	569	103%	25.6	C	
<i>Intersection Total</i>	1,882	1,858	99%	23.9		
78. Brundage Ln & SR58 WB Ramps (Cottonwood Rd)						
NB - SR58 WB Off Ramp	200	216	108%	28.3	C	
SB - Driveway	14	13	93%	18.6	B	
EB - Brundage Ln	661	634	96%	13.6	B	
WB - Brundage Ln	497	495	100%	25.1	C	
<i>Intersection Total</i>	1,372	1,358	99%	20.2		
79. Cottonwood Rd & SR 58 EB Off Ramp						

BAKERSFIELD CENTENNIAL CORRIDOR TRAFFIC OPERATIONS ANALYSIS

YR2038 Alt.C INTERSECTION ANALYSIS RESULTS - AM PEAK

Location	Demand Volume (vph)	CORSIM Served Volume (vph)	% Served in Model	Control Delay (sec/veh)	LOS (Approach)	LOS (Overall)
NB - Cottonwood Rd	704	701	100%	14.4	B	
SB - Cottonwood Rd	495	496	100%	6.6	A	
EB - SR-58 EB off Ramp	645	645	100%	13.8	B	
<i>Intersection Total</i>	1,844	1,842	100%	12.1		

HCM Signalized Intersection Capacity Analysis

1: Stockdale Hwy & I-5 SB Off-ramp

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↔		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0							4.0
Lane Util. Factor	0.95			1.00	0.95							1.00
Frt	0.99			1.00	1.00							1.00
Flt Protected	1.00			0.95	1.00							0.95
Satd. Flow (prot)	3501			1770	3539							1770
Flt Permitted	1.00			0.72	1.00							0.95
Satd. Flow (perm)	3501			1339	3539							1770
Volume (vph)	0	42	3	10	127	0	0	0	0	322	0	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.84	0.84	0.84	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	52	4	12	151	0	0	0	0	358	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	12	151	0	0	0	0	0	358	0
Turn Type					Perm						Split	
Protected Phases		4				8					6	6
Permitted Phases					8							
Actuated Green, G (s)	7.5			7.5	7.5							44.5
Effective Green, g (s)	7.5			7.5	7.5							44.5
Actuated g/C Ratio	0.12			0.12	0.12							0.74
Clearance Time (s)	4.0			4.0	4.0							4.0
Vehicle Extension (s)	3.0			3.0	3.0							3.0
Lane Grp Cap (vph)	438			167	442							1313
v/s Ratio Prot	0.02				0.04							0.20
v/s Ratio Perm				0.01								
v/c Ratio	0.12			0.07	0.34							0.27
Uniform Delay, d1	23.3			23.2	24.0							2.5
Progression Factor	1.00			1.15	1.09							1.00
Incremental Delay, d2	0.1			0.2	0.5							0.5
Delay (s)	23.4			26.8	26.7							3.0
Level of Service	C			C	C							A
Approach Delay (s)	23.4				26.7			0.0				3.0
Approach LOS	C				C			A				A
Intersection Summary												
HCM Average Control Delay	11.7				HCM Level of Service					B		
HCM Volume to Capacity ratio	0.28											
Actuated Cycle Length (s)	60.0				Sum of lost time (s)			8.0				
Intersection Capacity Utilization	34.5%				ICU Level of Service			A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Stockdale Highway & Wegis Ave

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1717	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1863	1583	1770	1717	
Volume (vph)	5	906	20	75	978	80	10	20	250	196	10	11
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	5	974	22	81	1052	86	11	23	284	223	11	12
RTOR Reduction (vph)	0	0	6	0	0	11	0	0	38	0	5	0
Lane Group Flow (vph)	5	974	16	81	1052	75	11	23	246	223	18	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8				2		
Actuated Green, G (s)	0.8	44.1	44.1	8.6	51.9	51.9	0.8	29.0	29.0	22.3	50.5	
Effective Green, g (s)	0.8	44.1	44.1	8.6	51.9	51.9	0.8	29.0	29.0	22.3	50.5	
Actuated g/C Ratio	0.01	0.37	0.37	0.07	0.43	0.43	0.01	0.24	0.24	0.19	0.42	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	12	1301	582	127	1531	685	12	450	383	329	723	
v/s Ratio Prot	0.00	c0.28		0.05	c0.30		0.01	0.01		c0.13	0.01	
v/s Ratio Perm			0.01			0.05			0.18			
y/c Ratio	0.42	0.75	0.03	0.64	0.69	0.11	0.92	0.05	0.64	0.68	0.03	
Uniform Delay, d1	59.4	33.1	24.2	54.2	27.5	20.3	59.6	34.9	40.8	45.5	20.3	
Progression Factor	0.60	0.45	0.31	1.53	0.75	0.56	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.9	2.0	0.0	7.4	0.9	0.1	212.2	0.2	8.0	5.5	0.1	
Delay (s)	53.6	16.8	7.6	90.1	21.6	11.4	271.7	35.2	48.9	51.0	20.4	
Level of Service	D	B	A	F	C	B	F	D	D	D	C	
Approach Delay (s)		16.8			25.4			55.6		48.1		
Approach LOS		B			C			E		D		
Intersection Summary												
HCM Average Control Delay		27.8										C
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		120.0										16.0
Intersection Capacity Utilization		61.4%										B
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Rosedale Hwy & Allen Road

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑↑	↑↑	↑↑	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.91	0.97	0.97	0.91	0.97
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	1.00	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	4759	1524	3213	3167	1468	3273	4755	3183	4993	3183	4993
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3433	4759	1524	3213	3167	1468	3273	4755	3183	4993	3183	4993
Volume (vph)	112	724	133	206	437	175	128	686	228	260	1084	46
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	120	778	143	222	470	188	138	738	245	277	1153	49
RTOR Reduction (vph)	0	0	10	0	0	19	0	0	0	0	0	0
Lane Group Flow (vph)	120	778	133	222	470	169	138	983	0	277	1202	0
Heavy Vehicles (%)	2%	9%	6%	9%	14%	10%	7%	4%	8%	10%	3%	9%
Turn Type	Prot		Perm	Prot		Perm	Prot		Prot		Prot	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.0	31.8	31.8	6.0	31.8	31.8	6.0	27.1		7.1	28.2	
Effective Green, g (s)	7.3	34.8	34.8	7.3	34.8	34.8	6.9	30.1		8.0	31.2	
Actuated g/C Ratio	0.08	0.36	0.36	0.08	0.36	0.36	0.07	0.31		0.08	0.32	
Clearance Time (s)	5.3	7.0	7.0	5.3	7.0	7.0	4.9	7.0		4.9	7.0	
Vehicle Extension (s)	2.0	6.0	6.0	2.0	5.3	5.3	2.0	3.1		2.0	2.4	
Lane Grp Cap (vph)	261	1722	551	244	1146	531	235	1488		265	1619	
v/s Ratio Prot	0.03	c0.16		c0.07	0.15		0.04	0.21		c0.09	c0.24	
v/s Ratio Perm			0.09			0.13						
v/c Ratio	0.46	0.45	0.24	0.91	0.41	0.32	0.59	0.66		1.05	0.74	
Uniform Delay, d1	42.6	23.4	21.5	44.1	23.0	22.1	43.3	28.6		44.1	28.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.9	1.0	33.5	1.1	1.6	2.4	1.1		67.6	1.8	
Delay (s)	43.0	24.3	22.5	77.6	24.1	23.7	45.7	29.7		111.7	30.7	
Level of Service	D	C	C	E	C	C	D	C		F	C	
Approach Delay (s)		26.2			37.5			31.7			45.9	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay			36.2				HCM Level of Service			D		
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			96.2				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			60.2%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

17: Allen Road & San Juan Ave.

7/26/2012



Movement	EBI	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↑	↓		↑	↑↑↑	↑	↑	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00			1.00	0.91	1.00	1.00	0.91	1.00
Frl	0.95		1.00	0.85			1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00			0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1722		1770	1584			1770	5085	1583	1770	5085	1583
Flt Permitted	0.36		0.65	1.00			0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	648		1214	1584			1770	5085	1583	1770	5085	1583
Volume (vph)	99	1	50	67	1	217	50	1393	80	224	1077	79
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	118	1	60	76	1	247	53	1482	85	238	1146	84
RTOR Reduction (vph)	0	17	0	0	196	0	0	0	13	0	0	5
Lane Group Flow (vph)	0	162	0	76	52	0	53	1482	72	238	1146	79
Turn Type	Perm		Perm				Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)	25.0		25.0	25.0			6.9	59.1	59.1	23.9	76.1	76.1
Effective Green, g (s)	25.0		25.0	25.0			6.9	59.1	59.1	23.9	76.1	76.1
Actuated g/C Ratio	0.21		0.21	0.21			0.06	0.49	0.49	0.20	0.63	0.63
Clearance Time (s)	4.0		4.0	4.0			4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	135		253	330			102	2504	780	353	3225	1004
w/s Ratio Prot				0.16			0.03	c0.29		c0.13	0.23	
v/s Ratio Perm	c0.28		0.06						0.05			0.05
v/c Ratio	1.20		0.30	0.16			0.52	0.59	0.09	0.67	0.36	0.08
Uniform Delay, d1	47.5		40.1	38.9			54.9	21.8	16.2	44.4	10.4	8.4
Progression Factor	1.00		1.00	1.00			1.11	0.37	0.42	1.00	1.11	1.10
Incremental Delay, d2	139.9		0.7	0.2			2.9	0.7	0.2	4.6	0.3	0.1
Delay (s)	187.4		40.8	39.1			64.1	8.8	6.9	49.3	11.8	9.4
Level of Service	F		D	D			E	A	A	D	B	A
Approach Delay (s)	187.4			39.5				10.5			17.7	
Approach LOS	F			D				B			B	

Intersection Summary

HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

19: Rosedale Hwy & Calloway Drive

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑↑	↑↑	↑↑↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.97	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	1.00	1.00	0.85	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3367	4673	1509	3155	4550	1429	3019	4591		3242	4940	1455
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3367	4673	1509	3155	4550	1429	3019	4591		3242	4940	1455
Volume (vph)	152	1390	233	259	627	115	229	828	296	484	1104	101
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	160	1463	245	278	674	124	244	881	315	515	1174	107
RTOR Reduction (vph)	0	0	24	0	0	15	0	0	0	0	0	10
Lane Group Flow (vph)	160	1463	221	278	674	109	244	1196	0	515	1174	97
Heavy Vehicles (%)	4%	11%	7%	11%	14%	13%	16%	8%	10%	8%	5%	11%
Turn Type	Prot	Perm	Prot	Prot	Perm	Prot	Prot	Prot	Prot	Prot	Perm	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						4
Actuated Green, G (s)	13.3	34.0	34.0	8.7	29.4	29.4	13.8	34.0		16.9	37.1	37.1
Effective Green, g (s)	15.6	36.9	36.9	11.0	32.3	32.3	16.0	37.0		19.1	40.1	40.1
Actuated g/C Ratio	0.13	0.31	0.31	0.09	0.27	0.27	0.13	0.31		0.16	0.33	0.33
Clearance Time (s)	6.3	6.9	6.9	6.3	6.9	6.9	6.2	7.0		6.2	7.0	7.0
Vehicle Extension (s)	2.0	5.9	5.9	2.0	6.5	6.5	2.0	4.3		2.0	4.3	4.3
Lane Grp Cap (vph)	438	1437	464	289	1225	385	403	1416		516	1651	486
v/s Ratio Prot	0.05	c0.31		c0.09	0.15		0.08	c0.26		c0.16	0.24	
v/s Ratio Perm			0.16			0.09						0.07
v/c Ratio	0.37	1.02	0.48	0.96	0.55	0.28	0.61	0.84		1.00	0.71	0.20
Uniform Delay, d1	47.7	41.5	33.7	54.3	37.6	34.7	49.0	38.8		50.4	34.9	28.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	28.4	2.1	42.2	1.3	1.3	1.8	6.3		38.8	2.6	0.9
Delay (s)	47.9	69.9	35.8	96.5	38.9	36.0	50.8	45.1		89.2	37.5	29.4
Level of Service	D	E	D	F	D	D	D	D		F	D	C
Approach Delay (s)		63.6			53.4			46.1			51.9	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	54.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Rosedale Hwy & Coffee Road

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑	↑↑	↑↑↑	↑	↑↑↑	↑↑↑	↑	↑↑↑	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.94	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3183	4759	1468	3213	4673	1495	4586	4988	1495	3303	4940	1392
Volume (vph)	227	1441	518	312	801	136	564	1011	571	295	864	50
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	239	1517	545	335	861	146	594	1064	601	317	929	54
RTOR Reduction (vph)	0	0	39	0	0	17	0	0	46	0	0	7
Lane Group Flow (vph)	239	1517	506	335	861	129	594	1064	555	317	929	47
Heavy Vehicles (%)	10%	9%	10%	9%	11%	8%	11%	4%	8%	6%	5%	16%
Tum Type	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	9.6	38.5	38.5	7.7	36.6	36.6	9.8	37.6	37.6	9.2	37.0	37.0
Effective Green, g (s)	11.9	41.5	41.5	10.0	39.6	39.6	12.0	41.1	41.1	11.4	40.5	40.5
Actuated g/C Ratio	0.10	0.35	0.35	0.08	0.33	0.33	0.10	0.34	0.34	0.10	0.34	0.34
Clearance Time (s)	6.3	7.0	7.0	6.3	7.0	7.0	6.2	7.5	7.5	6.2	7.5	7.5
Vehicle Extension (s)	2.0	4.6	4.6	2.0	4.9	4.9	2.0	6.0	6.0	2.0	6.0	6.0
Lane Grp Cap (vph)	316	1646	506	268	1542	493	459	1708	512	314	1667	470
v/s Ratio Prot	0.08	0.32		c0.10	0.18		c0.13	0.21		0.10	0.19	
v/s Ratio Perm			0.37			0.10			0.40			0.04
v/c Ratio	0.76	0.92	1.00	1.25	0.56	0.26	1.29	0.62	1.08	1.01	0.56	0.10
Uniform Delay, d1	52.6	37.7	39.2	55.0	33.0	29.5	54.0	33.0	39.5	54.3	32.4	27.3
Progression Factor	1.00	1.00	1.00	0.90	0.81	0.73	0.89	0.55	0.54	1.00	1.00	1.00
Incremental Delay, d2	8.8	10.0	38.9	132.7	1.0	0.9	145.6	1.5	61.4	53.2	1.4	0.4
Delay (s)	61.5	47.7	78.0	182.3	27.8	22.5	193.5	19.6	82.8	107.5	33.8	27.7
Level of Service	E	D	E	F	C	C	F	B	F	F	C	C
Approach Delay (s)		56.3			65.8			82.2			51.5	
Approach LOS		E			E			F			D	

Intersection Summary

HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Stockdale Highway & Coffee Road

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑	↑↑	↑↑↑	↑↑↑	↑↑	↑↑↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	0.97	0.91	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3433	4988	1495	3367	4940	1495	3433	5014	3400	4988	1553	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3433	4988	1495	3367	4940	1495	3433	5014	3400	4988	1553	1553
Volume (vph)	579	1068	70	247	515	318	296	1747	169	417	1165	489
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	616	1136	74	266	554	342	312	1839	178	439	1226	515
RTOR Reduction (vph)	0	0	9	0	0	27	0	0	0	0	0	38
Lane Group Flow (vph)	616	1136	66	266	554	315	312	2017	0	439	1226	477
Heavy Vehicles (%)	2%	4%	8%	4%	5%	8%	2%	2%	3%	3%	4%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot		Prot		Perm	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases			8			4						2
Actuated Green, G (s)	19.2	33.0	33.0	11.4	25.2	25.2	13.0	42.6		13.0	42.6	42.6
Effective Green, g (s)	19.2	35.0	35.0	11.4	27.2	27.2	13.0	44.6		13.0	44.6	44.6
Actuated g/C Ratio	0.16	0.29	0.29	0.10	0.23	0.23	0.11	0.37		0.11	0.37	0.37
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0		4.0	6.0	6.0
Vehicle Extension (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	549	1455	436	320	1120	339	372	1864		368	1854	577
v/s Ratio Prot	c0.18	0.23		0.08	0.11		0.09	c0.40		c0.13	0.25	
v/s Ratio Perm			0.05			0.23						0.33
v/c Ratio	1.12	0.78	0.15	0.83	0.49	0.93	0.84	1.08		1.19	0.66	0.83
Uniform Delay, d1	50.4	39.0	31.5	53.4	40.4	45.5	52.5	37.7		53.5	31.4	34.2
Progression Factor	0.71	0.56	0.53	1.00	1.00	1.00	1.00	1.00		1.04	0.97	0.96
Incremental Delay, d2	74.0	2.2	0.0	15.9	0.1	30.5	14.5	47.0		108.5	1.7	11.6
Delay (s)	109.8	24.1	16.8	69.3	40.5	75.9	67.0	84.7		163.9	32.2	44.6
Level of Service	F	C	B	E	D	E	E	F		F	C	D
Approach Delay (s)		52.8			57.5			82.3			61.7	
Approach LOS		D			E			F			E	

Intersection Summary

HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

30: Rosedale Hwy & Mohawk Street

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑	1	2	↑↑	1	2	↑↑	1	2	↑↑	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.94	0.91	1.00	0.94	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Ft Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3155	4940	1429	4627	4803	1429	4757	4803	1417	3273	4803	1455
Ft Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3155	4940	1429	4627	4803	1429	4757	4803	1417	3273	4803	1455
Volume (vph)	51	1675	448	694	1280	104	466	739	583	145	660	45
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	54	1763	472	731	1347	109	491	778	614	156	710	48
RTOR Reduction (vph)	0	0	34	0	0	15	0	0	32	0	0	2
Lane Group Flow (vph)	54	1763	438	731	1347	94	491	778	582	156	710	46
Heavy Vehicles (%)	11%	5%	13%	10%	8%	13%	7%	8%	14%	7%	8%	11%
Turn Type	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm	Prot	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6				8		4
Actuated Green, G (s)	4.8	37.2	37.2	11.0	43.4	43.4	15.5	40.8	40.8	6.0	31.3	31.3
Effective Green, g (s)	7.1	39.5	39.5	13.3	45.7	45.7	17.7	43.0	43.0	8.2	33.5	33.5
Actuated g/C Ratio	0.06	0.33	0.33	0.11	0.38	0.38	0.15	0.36	0.36	0.07	0.28	0.28
Clearance Time (s)	6.3	6.3	6.3	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	1626	470	513	1829	544	702	1721	508	224	1341	406
v/s Ratio Prot	0.02	c0.36		c0.16	0.28		c0.10	0.16		0.05	0.15	
v/s Ratio Perm			0.33			0.08			0.43			0.03
v/c Ratio	0.29	1.08	0.93	1.42	0.74	0.17	0.70	0.45	1.15	0.70	0.53	0.11
Uniform Delay, d1	54.0	40.2	39.0	53.4	32.0	24.6	48.6	29.5	38.5	54.7	36.6	32.2
Progression Factor	0.85	0.88	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	41.6	11.0	202.3	2.7	0.7	3.1	0.2	86.6	9.1	0.4	0.1
Delay (s)	46.1	77.0	44.2	255.7	34.7	25.3	51.7	29.7	125.1	63.7	37.0	32.3
Level of Service	D	E	D	F	C	C	D	C	F	E	D	C
Approach Delay (s)		69.5			108.1				66.5		41.3	
Approach LOS		E			F				E		D	

Intersection Summary

HCM Average Control Delay	76.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

34: Mohawk Street & California Avenue

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↖	↗	↖	↙	↗	↖	↗	↖	↑	↑↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.88	0.95	0.95		0.97	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1685	2787	1665	1684		3433	5024		1770	4988	1583
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1685	2787	1665	1684		3433	5024		1770	4988	1583
Volume (vph)	618	155	828	39	41	13	1034	1089	96	76	820	403
Peak-hour factor, PHF	0.94	0.94	0.94	0.84	0.84	0.84	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	657	165	881	46	49	15	1086	1146	101	82	882	433
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	0	0	0	26
Lane Group Flow (vph)	410	412	828	46	64	0	1088	1247	0	82	882	407
Heavy Vehicles (%)	2%	7%	2%	3%	2%	8%	2%	2%	2%	2%	4%	2%
Turn Type	Split		pm+ov	Split			Prot			Prot		Perm
Protected Phases	4	4	5	3	3		5	2		1	6	
Permitted Phases			4								6	
Actuated Green, G (s)	27.7	27.7	65.6	5.9	5.9		37.9	60.6		7.5	30.2	30.2
Effective Green, g (s)	29.0	29.0	66.9	5.9	5.9		37.9	61.6		7.5	31.2	31.2
Actuated g/C Ratio	0.24	0.24	0.56	0.05	0.05		0.32	0.51		0.06	0.26	0.26
Clearance Time (s)	5.3	5.3	4.0	4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	1.0	1.5	1.5		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	406	407	1647	82	83		1084	2579		111	1297	412
v/s Ratio Prot	0.24	c0.24	0.17	0.03	c0.04		c0.32	0.25		0.05	0.18	
v/s Ratio Perm			0.15								0.27	
v/c Ratio	1.01	1.01	0.50	0.56	0.77		1.00	0.48		0.74	0.68	0.99
Uniform Delay, d1	45.5	45.5	16.3	55.8	56.4		41.0	18.9		55.3	39.9	44.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.74	0.44		1.19	0.31	0.27
Incremental Delay, d2	47.2	47.7	0.1	5.1	32.3		23.8	0.5		17.4	2.5	38.6
Delay (s)	92.7	93.2	16.4	60.9	88.6		54.0	8.9		83.4	15.0	50.6
Level of Service	F	F	B	E	F		D	A		F	B	D
Approach Delay (s)		53.4			77.1			29.9			30.1	
Approach LOS		D			E			C			C	
Intersection Summary												
HCM Average Control Delay			38.1				HCM Level of Service			D		
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			83.2%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

35: Stockdale Highway & California Avenue

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑		↑↑	↑↑↑	↑↑	↑↑	↑↑↑		↑↑	↑↑↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91	1.00	0.97	0.91		0.97	0.91	1.00
Fr _t	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	4943		3273	4759	1583	3400	5035		3303	4893	1495
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	4943		3273	4759	1583	3400	5035		3303	4893	1495
Volume (vph)	600	962	125	108	925	87	235	1335	83	261	864	332
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	638	1023	133	116	995	94	250	1420	88	278	919	353
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	0	0	0	27
Lane Group Flow (vph)	638	1156	0	116	995	49	250	1508	0	278	919	326
Heavy Vehicles (%)	2%	3%	4%	7%	9%	2%	3%	2%	4%	6%	6%	8%
Turn Type	Prot			Prot			Perm	Prot		Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	23.8	45.4		7.8	29.4	29.4	10.5	36.7		11.5	37.7	37.7
Effective Green, g (s)	23.8	46.7		7.8	30.7	30.7	10.5	38.0		11.5	39.0	39.0
Actuated g/C Ratio	0.20	0.39		0.06	0.26	0.26	0.09	0.32		0.10	0.32	0.32
Clearance Time (s)	4.0	5.3		4.0	5.3	5.3	4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	0.5	2.0		0.5	2.0	2.0	0.5	2.0		0.5	2.0	2.0
Lane Grp Cap (vph)	681	1924		213	1218	405	298	1594		317	1590	486
v/s Ratio Prot	c0.19	0.23		0.04	c0.21		0.07	c0.30		c0.08	0.19	
v/s Ratio Perm						0.06						0.24
v/c Ratio	0.94	0.60		0.54	0.82	0.12	0.84	0.95		0.88	0.58	0.67
Uniform Delay, d1	47.4	29.2		54.4	42.0	34.3	53.9	40.0		53.6	33.7	35.0
Progression Factor	1.00	1.00		0.49	1.14	1.46	1.00	1.00		0.63	0.44	0.36
Incremental Delay, d2	20.1	1.4		1.3	5.3	0.5	17.6	12.9		19.6	1.3	6.2
Delay (s)	67.4	30.6		28.1	53.2	50.5	71.5	52.9		53.2	16.1	18.9
Level of Service	E	C		C	D	D	E	D		D	B	B
Approach Delay (s)		43.7			50.6			55.6			23.4	
Approach LOS		D			D			E			C	

Intersection Summary

HCM Average Control Delay	43.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

44: Empire & Truxton Ave

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓		↑	↑↓		↑	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		0.95	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1770	5081		1770	5050		1770	1593		1681	1564	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1770	5081		1770	5050		1770	1593		1681	1564	
Volume (vph)	119	1956	10	40	1648	80	28	3	91	46	3	26
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	125	2059	11	42	1735	84	33	4	108	55	4	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	125	2070	0	42	1819	0	33	112	0	47	43	0
Turn Type	Prot		Prot			Split			Split			
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												
Actuated Green, G (s)	13.0	64.2		5.6	56.8		18.2	18.2		16.0	16.0	
Effective Green, g (s)	13.0	64.2		5.6	56.8		18.2	18.2		16.0	16.0	
Actuated g/C Ratio	0.11	0.54		0.05	0.47		0.15	0.15		0.13	0.13	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	2718		83	2390		268	242		224	209	
v/s Ratio Prot	c0.07	c0.41		0.02	0.36		0.02	c0.07		c0.03	0.03	
v/s Ratio Perm												
v/c Ratio	0.65	0.76		0.51	0.76		0.12	0.46		0.21	0.21	
Uniform Delay, d1	51.3	21.9		55.8	26.0		44.0	46.4		46.4	46.3	
Progression Factor	1.00	1.00		1.06	0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	1.3		1.9	0.6		0.9	6.2		2.1	2.2	
Delay (s)	59.0	23.2		61.0	17.6		44.9	52.7		48.5	48.6	
Level of Service	E	C		E	B		D	D		D	D	
Approach Delay (s)		25.2			18.6			50.9			48.5	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM Average Control Delay		23.7		HCM Level of Service					C			
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		120.0		Sum of lost time (s)					12.0			
Intersection Capacity Utilization		60.2%		ICU Level of Service					B			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

50: Stockdale Hwy & Stine Rd

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	0.99			1.00	0.85		0.98	
Fit Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.98	
Satd. Flow (prot)	1770	3413		1770	3386			1794	1568		1782	
Fit Permitted	0.95	1.00		0.95	1.00			0.97	1.00		0.98	
Satd. Flow (perm)	1770	3413		1770	3386			1794	1568		1782	
Volume (vph)	28	1063	68	154	1016	56	83	48	221	77	116	40
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.88	0.88	0.88
Adj. Flow (vph)	30	1143	73	166	1092	60	92	53	246	88	132	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	30	1216	0	166	1152	0	0	145	229	0	265	0
Heavy Vehicles (%)	2%	5%	2%	2%	6%	2%	3%	2%	3%	3%	2%	3%
Turn Type	Prot			Prot			Split		Perm		Split	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases									3			
Actuated Green, G (s)	3.9	48.4		15.9	60.4			20.2	20.2		20.5	
Effective Green, g (s)	3.4	48.9		15.4	60.9			19.7	19.7		20.0	
Actuated g/C Ratio	0.03	0.41		0.13	0.51			0.16	0.16		0.17	
Clearance Time (s)	3.5	4.5		3.5	4.5			3.5	3.5		3.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	50	1391		227	1718			295	257		297	
v/s Ratio Prot	0.02	c0.36		0.09	c0.34			0.08			c0.15	
v/s Ratio Perm									0.16			
v/c Ratio	0.60	0.87		0.73	0.67			0.49	0.89		0.89	
Uniform Delay, d1	57.6	32.7		50.3	22.1			45.6	49.1		48.9	
Progression Factor	1.18	0.39		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	14.9	6.6		11.5	2.1			1.3	29.6		26.7	
Delay (s)	83.2	19.3		61.8	24.2			46.9	78.7		75.6	
Level of Service	F	B		E	C			D	E		E	
Approach Delay (s)		20.8			28.9			66.9			75.6	
Approach LOS		C			C			E			E	
Intersection Summary												
HCM Average Control Delay		34.2										C
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		120.0										12.0
Intersection Capacity Utilization		69.5%										C
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

56: Ming Avenue & New Stine Road

7/26/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑↑↓		↑↑	↑↑↑↓		↑↑	↑↑↑↓		↑↑	↑↑↑↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.91	1.00	0.97	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	0.96	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5010		3433	4953		3433	5085	1561	3433	4858	
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5010		3433	4953		3433	5085	1561	3433	4858	
Volume (vph)	559	1507	149	115	851	160	299	1457	90	83	553	208
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	588	1586	157	124	915	172	315	1534	95	89	595	224
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	588	1743	0	124	1087	0	315	1534	85	89	819	0
Confl. Peds. (#/hr)				2			2		2			2
Turn Type	Prot		Prot		Prot		Prot		Perm	Prot		Prot
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases								8				
Actuated Green, G (s)	15.9	38.7		4.7	27.5		8.0	28.1	28.1	4.7	24.8	
Effective Green, g (s)	15.9	40.0		4.7	28.8		8.0	29.4	29.4	4.7	26.1	
Actuated g/C Ratio	0.17	0.42		0.05	0.30		0.08	0.31	0.31	0.05	0.28	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	0.5	2.0		0.5	2.0		0.5	2.0	2.0	0.5	2.0	
Lane Grp Cap (vph)	576	2114		170	1505		290	1577	484	170	1337	
v/s Ratio Prot	c0.17	c0.35		0.04	0.22		c0.09	c0.30		0.03	0.17	
v/s Ratio Perm									0.06			
v/c Ratio	1.02	0.82		0.73	0.72		1.09	0.97	0.17	0.52	0.61	
Uniform Delay, d1	39.4	24.3		44.4	29.4		43.4	32.3	23.9	44.0	29.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	42.9	3.8		12.4	3.0		77.8	16.5	0.1	1.3	0.6	
Delay (s)	82.3	28.1		56.9	32.5		121.2	48.8	23.9	45.3	30.5	
Level of Service	F	C	E	C		F	D	C	D	C		
Approach Delay (s)		41.8			35.0			59.3			32.0	
Approach LOS	D		C			E				C		
Intersection Summary												
HCM Average Control Delay		44.4					HCM Level of Service		D			
HCM Volume to Capacity ratio		0.97										
Actuated Cycle Length (s)		94.8					Sum of lost time (s)		16.0			
Intersection Capacity Utilization		84.1%					ICU Level of Service		E			
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

62: White Lane & Wible Road

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↑↑		2	↑↑↑		2	↑↑		2	↑↑	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.90		0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3367	4809		3400	4848	1561	2968	3505	1546	3242	3374	1487
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3367	4809		3400	4848	1561	2968	3505	1546	3242	3374	1487
Volume (vph)	120	1875	98	426	1629	196	83	274	483	280	203	97
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	126	1974	103	448	1715	206	89	295	519	304	221	105
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	79	0	0	8
Lane Group Flow (vph)	126	2077	0	448	1715	169	89	295	440	304	221	97
Confl. Peds. (#/hr)				2		2			2			2
Heavy Vehicles (%)	4%	6%	2%	3%	7%	2%	18%	3%	3%	8%	7%	7%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	5.0	39.5		11.0	45.5	45.5	21.4	31.7	31.7	8.8	19.1	19.1
Effective Green, g (s)	5.0	41.2		11.0	47.2	47.2	21.4	33.0	33.0	8.8	20.4	20.4
Actuated g/C Ratio	0.05	0.37		0.10	0.43	0.43	0.19	0.30	0.30	0.08	0.19	0.19
Clearance Time (s)	4.0	5.7		4.0	5.7	5.7	4.0	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lane Grp Cap (vph)	153	1801		340	2080	670	577	1052	464	259	626	276
v/s Ratio Prot	0.04	c0.43		c0.13	0.35		0.03	0.08		c0.09	0.07	
v/s Ratio Perm						0.13			0.34			0.07
y/c Ratio	0.82	1.15		1.32	0.82	0.25	0.15	0.28	0.95	1.17	0.35	0.35
Uniform Delay, d1	52.1	34.4		49.5	27.7	20.1	36.8	29.4	37.7	50.6	39.0	39.0
Progression Factor	1.00	1.00		1.07	0.99	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.6	75.8		155.0	2.4	0.5	0.0	0.1	28.5	111.2	0.1	0.3
Delay (s)	79.6	110.2		207.8	29.8	19.2	36.8	29.5	66.1	161.8	39.2	39.3
Level of Service	E	F		F	C	B	D	C	E	F	D	D
Approach Delay (s)		108.5			62.5			51.3			98.4	
Approach LOS		F			E			D			F	
Intersection Summary												
HCM Average Control Delay		81.1										F
HCM Volume to Capacity ratio		1.16										
Actuated Cycle Length (s)		110.0										16.0
Intersection Capacity Utilization		102.0%										G
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

63: White Lane & SR-99 SB Ramps

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑↑	↑		↑↑↑↑						↑↑	↑↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0						4.0		4.0
Lane Util. Factor	0.86	1.00		0.91						0.97		0.88
Frpb, ped/bikes	1.00	1.00		1.00						1.00		1.00
Fipb, ped/bikes	1.00	1.00		1.00						1.00		1.00
Fr _t	1.00	0.85		0.97						1.00		0.85
Flt Protected	1.00	1.00		1.00						0.95		1.00
Satd. Flow (prot)	6225	1509		4638						3433		2707
Flt Permitted	1.00	1.00		1.00						0.95		1.00
Satd. Flow (perm)	6225	1509		4638						3433		2707
Volume (vph)	0	2188	450	0	1129	260	0	0	0	563	0	1122
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	0	2279	469	0	1201	277	0	0	0	599	0	1194
RTOR Reduction (vph)	0	0	134	0	33	0	0	0	0	0	0	19
Lane Group Flow (vph)	0	2279	335	0	1445	0	0	0	0	599	0	1175
Confl. Peds. (#/hr)					2							
Heavy Vehicles (%)	2%	5%	7%	2%	8%	9%	2%	2%	2%	2%	2%	5%
Turn Type			Perm							custom		custom
Protected Phases	2				6					4		
Permitted Phases		2								4		4
Actuated Green, G (s)	46.0	46.0		46.0						52.1		52.1
Effective Green, g (s)	48.3	48.3		48.3						53.7		53.7
Actuated g/C Ratio	0.44	0.44		0.44						0.49		0.49
Clearance Time (s)	6.3	6.3		6.3						5.6		5.6
Vehicle Extension (s)	4.3	4.3		4.9						3.4		3.4
Lane Grp Cap (vph)	2733	663		2037						1676		1322
v/s Ratio Prot	c0.37			0.32						0.17		
v/s Ratio Perm		0.31									0.44	
v/c Ratio	0.83	0.51		0.71						0.36		0.89
Uniform Delay, d1	27.3	22.2		25.1						17.5		25.4
Progression Factor	0.45	0.15		1.17						1.00		1.00
Incremental Delay, d2	0.3	0.2		1.5						0.2		7.7
Delay (s)	12.5	3.5		30.9						17.6		33.2
Level of Service	B	A		C						B		C
Approach Delay (s)	11.0			30.9			0.0			28.0		
Approach LOS	B			C			A			C		
Intersection Summary												
HCM Average Control Delay		20.9		HCM Level of Service			C					
HCM Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		110.0		Sum of lost time (s)			8.0					
Intersection Capacity Utilization		73.6%		ICU Level of Service			D					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

64: White Lane & SR-99 NB Ramps

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑		↑↑↑	↑↑	↑	↑↑	↑	↑	↑	↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.86	0.86		0.91	1.00	1.00				1.00		
Frpb, ped/bikes	1.00	1.00		1.00	0.98	1.00				1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00				1.00		
Fr _t	0.95	0.85		1.00	0.85	1.00				0.85		
Fit Protected	1.00	1.00		1.00	1.00	0.95				1.00		
Satd. Flow (prot)	4353	1286		4848	1492	1703				1455		
Fit Permitted	1.00	1.00		1.00	1.00	0.95				1.00		
Satd. Flow (perm)	4353	1286		4848	1492	1703				1455		
Volume (vph)	0	1101	1650	0	688	700	701	0	384	0	0	0
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	0	1147	1719	0	732	745	754	0	413	0	0	0
RTOR Reduction (vph)	0	86	0	0	0	0	0	0	15	0	0	0
Lane Group Flow (vph)	0	1680	1100	0	732	745	754	0	398	0	0	0
Confl. Peds. (#/hr)							2					
Heavy Vehicles (%)	2%	6%	8%	2%	7%	6%	6%	2%	11%	2%	2%	2%
Turn Type			Free			Free	Prot		custom			
Protected Phases	2				6		8					
Permitted Phases			Free			Free			8			
Actuated Green, G (s)	47.8	110.0		47.8	110.0	52.1			52.1			
Effective Green, g (s)	48.7	110.0		48.7	110.0	53.3			53.3			
Actuated g/C Ratio	0.44	1.00		0.44	1.00	0.48			0.48			
Clearance Time (s)	4.9			4.9		5.2			5.2			
Vehicle Extension (s)	5.7			5.7		5.3			5.3			
Lane Grp Cap (vph)	1927	1286		2146	1492	825			705			
v/s Ratio Prot	0.41			0.15		0.44						
v/s Ratio Perm		0.86				0.50			0.28			
y/c Ratio	0.87	0.86		0.34	0.50	0.91			0.56			
Uniform Delay, d1	27.8	0.0		20.1	0.0	26.2			20.1			
Progression Factor	1.22	1.00		0.92	1.00	1.00			1.00			
Incremental Delay, d2	4.8	4.1		0.3	0.9	15.3			1.8			
Delay (s)	38.8	4.1		18.8	0.9	41.5			21.9			
Level of Service	D	A		B	A	D			C			
Approach Delay (s)	25.5			9.8			34.6			0.0		
Approach LOS	C			A			C			A		
Intersection Summary												
HCM Average Control Delay	23.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.86											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			0.0					
Intersection Capacity Utilization	79.1%			ICU Level of Service			D					
Analysis Period (min)	15											
t: Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

65: White Lane & Hughes Lane

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑↑		↑	↑↑	↑	↑	↑↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1736	4718		1752	4768		1752	3471	1389	1736	3117	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1736	4718		1752	4768		1752	3471	1389	1736	3117	
Volume (vph)	267	965	234	87	807	65	313	204	59	64	122	193
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	284	1027	249	94	868	70	340	222	64	71	136	214
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	284	1276	0	94	938	0	340	222	61	71	350	0
Confl. Peds. (#/hr)				2		3			5			3
Heavy Vehicles (%)	4%	7%	4%	3%	7%	13%	3%	4%	14%	4%	6%	3%
Turn Type	Prot			Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases									8			
Actuated Green, G (s)	19.2	42.3		9.0	32.1		23.5	33.4	33.4	6.7	16.6	
Effective Green, g (s)	19.2	43.6		9.0	33.4		23.5	34.7	34.7	6.7	17.9	
Actuated g/C Ratio	0.17	0.40		0.08	0.30		0.21	0.32	0.32	0.06	0.16	
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3	5.3	4.0	5.3	
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lane Grp Cap (vph)	303	1870		143	1448		374	1095	438	106	507	
v/s Ratio Prot	c0.16	c0.27		0.05	c0.20		c0.19	0.06		0.04	c0.11	
v/s Ratio Perm									0.05			
v/c Ratio	0.94	0.68		0.66	0.65		0.91	0.20	0.14	0.67	0.69	
Uniform Delay, d1	44.8	27.5		49.0	33.2		42.2	27.5	26.9	50.6	43.4	
Progression Factor	1.05	1.58		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.3	1.2		8.0	2.3		24.6	0.0	0.1	11.7	3.3	
Delay (s)	71.5	44.5		57.0	35.5		66.8	27.6	27.0	62.3	46.7	
Level of Service	E	D		E	D		E	C	C	E	D	
Approach Delay (s)		49.4			37.4			48.8			49.3	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay		45.9					HCM Level of Service			D		
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		110.0					Sum of lost time (s)			12.0		
Intersection Capacity Utilization		74.5%					ICU Level of Service			D		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

69: Ming Avenue & H Street

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	↑↓		2	↑↓		2	↑↓		2	↑↓	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	0.98		1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3333		1736	3238		1703	3414		1770	3471	1500
Fit Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3333		1736	3238		1703	3414		1770	3471	1500
Volume (vph)	164	547	35	200	444	39	52	688	106	52	358	86
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	178	595	38	217	483	42	56	740	114	57	389	93
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	9
Lane Group Flow (vph)	178	633	0	217	525	0	56	854	0	57	389	84
Confl. Peds. (#/hr)			2			3			2			2
Heavy Vehicles (%)	2%	7%	11%	4%	10%	10%	6%	3%	6%	2%	4%	6%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases		4									6	
Actuated Green, G (s)	19.6	27.3		17.6	25.3		6.2	50.1		6.4	50.3	50.3
Effective Green, g (s)	19.6	28.6		17.6	26.6		6.2	51.4		6.4	51.6	51.6
Actuated g/C Ratio	0.16	0.24		0.15	0.22		0.05	0.43		0.05	0.43	0.43
Clearance Time (s)	4.0	5.3		4.0	5.3		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	4.0		1.0	4.0		1.0	4.0		1.0	4.0	4.0
Lane Grp Cap (vph)	289	794		255	718		88	1462		94	1493	645
v/s Ratio Prot	0.10	c0.19		c0.13	c0.16		0.03	c0.25		c0.03	0.11	
v/s Ratio Perm												0.06
y/c Ratio	0.62	0.80		0.85	0.73		0.64	0.58		0.61	0.26	0.13
Uniform Delay, d1	46.7	43.0		49.9	43.4		55.8	26.2		55.6	22.0	20.7
Progression Factor	1.00	1.00		0.80	0.61		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.7	5.9		20.0	3.6		10.6	1.7		7.4	0.4	0.4
Delay (s)	49.4	48.9		59.8	30.1		66.4	27.9		62.9	22.4	21.1
Level of Service	D	D		E	C		E	C		E	C	C
Approach Delay (s)		49.0			38.8			30.2			26.4	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay		36.7										D
HCM Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		120.0										12.0
Intersection Capacity Utilization		68.1%										C
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

73: Ming Avenue & Chester Avenue

7/26/2012



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	0.97		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1736	3227		1719	3146		1626	3378		1736	3471	1474
Fl _t Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1736	3227		1719	3146		1626	3378		1736	3471	1474
Volume (vph)	205	404	101	64	278	47	146	471	35	28	375	223
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	439	110	71	309	52	159	512	38	30	408	242
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	16
Lane Group Flow (vph)	223	549	0	71	361	0	159	550	0	30	408	226
Confl. Peds. (#/hr)				2		5		4				2
Heavy Vehicles (%)	4%	7%	13%	5%	13%	6%	11%	5%	14%	4%	4%	8%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases					6							4
Actuated Green, G (s)	29.8	57.5		7.0	34.7		15.9	33.7		3.6	21.4	21.4
Effective Green, g (s)	29.8	58.4		7.0	35.6		15.9	35.0		3.6	22.7	22.7
Actuated g/C Ratio	0.25	0.49		0.06	0.30		0.13	0.29		0.03	0.19	0.19
Clearance Time (s)	4.0	4.9		4.0	4.9		4.0	5.3		4.0	5.3	5.3
Vehicle Extension (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	431	1570		100	933		215	985		52	657	279
v/s Ratio Prot	c0.13	0.17		c0.04	c0.11		c0.10	0.16		0.02	0.12	
v/s Ratio Perm												0.16
y/c Ratio	0.52	0.35		0.71	0.39		0.74	0.56		0.58	0.62	0.81
Uniform Delay, d1	38.9	19.1		55.5	33.5		50.1	36.0		57.4	44.7	46.6
Progression Factor	0.38	0.38		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.4		17.1	1.2		10.9	0.4		9.3	1.3	14.9
Delay (s)	15.1	7.7		72.0	34.7		60.9	36.4		66.7	46.0	61.5
Level of Service	B	A		E	C		E	D		E	D	E
Approach Delay (s)		9.8			41.0			41.9			52.4	
Approach LOS		A			D			D			D	

Intersection Summary

HCM Average Control Delay	35.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

